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PUBLIC HEALTH ADMINISTRATION IN ILLINOIS.

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In 1913 the General Assembly of the State of Illinois passed a resolution creating a committee to be known as the efficiency and economy committee, to investigate all departments of the State government, including boards, bureaus, and commissions which have been created by the general assembly, such investigation to be made with a view of securing a more perfect system of accounting, combining, and centralizing the duties of the various departments and securing such reorganization as will promote greater economy and efficiency.

This committee met in September, 1913, and in November of that year appointed Dr. John A. Fairlie, professor of political science at the University of Illinois, as director.

In April, 1914, the chairman of this committee, State Senator Walter I. Manny, asked the United States Public Health Service to undertake a study of the Illinois health agencies, in which request the secretary of the State board of health joined. This invitation was accepted by the Surgeon General of the Public Health Service, but owing to certain exigencies, the studies were not begun until November 9, 1914. At this time, the work of the efficiency and economy committee in so far as their general plan was concerned was drawing to a close, and a report on public health administration in Illinois and in other States had been submitted to them by John Mabry Mathews, associate in political science, University of Illinois, and several hearings on this and kindred subjects had been held. The plans of the committee were stated to include the work of the State board of health, the State food commissioner, and the examining and licensing boards for pharmacists, dentists and nurses.

As the general assembly was to convene on January 1, the committee asked that a preliminary report, embodying suggestions looking to the more efficient combination of the health agencies of the State be submitted to them as soon as possible.

In accordance with this request, a preliminary report was submitted dealing with such general principles as could at that time be

discussed. Before preparing the same, the tentative conclusions of the above-mentioned committee, and the views of certain of the health officials, were ascertained, it being the object to make practical suggestions applicable to present conditions rather than recommendations of a theoretical character.

In the meantime, advantage has been taken of the opportunity to make a comprehensive study of the whole situation, and the report which follows is the result of studies made in the office and field, not only of the work of the State board of health, but of the sanitary functions of other departments. The studies covered a period of over three months, and the desire of the efficiency and economy committee to coordinate and centralize the public health functions of the State has been kept in mind.

While making the observations upon which this report is based, the cordial cooperation of State and city officials has been available and utilized. It is desired to acknowledge, especially, the assistance of the director of the efficiency and economy committee, the secretary of the State board of health, and his staff, the Chicago civil service commission, and the president of the State association for the prevention of tuberculosis.

The State board of health will first be discussed and then so much as is pertinent of other State departments.

The present organization of the State board of health is not complete, and is more the result of development along lines of least resistance, than of any regular plan. The various functions are exercised by one desk or another as may be convenient, or as the secretary may direct. With the exception of two or three divisions, the work of the board is not definitely subdivided. For purposes of description and discussion, therefore, the organization is dealt with in this report under the following headings: State board of health, secretary, office and accounts, division of vital statistics, division of sanitation, division of lodging house inspection, laboratory, and division of medical registration.

State Board of Health.

The State board of health exercises two distinct functions in the State of Illinois, deriving its authority from two separate organic laws, viz, the State board of health act which went into effect July 1, 1877, and the Illinois medical-practice act approved April 24, 1899. Subsequent laws relate to one or other of the two functions thus specified.

The first act created the State board of health as an unpaid body, gave it broad but very general powers, defined broadly its duties, mentioning quarantine, the transportation of the dead, the registration of births and deaths, and the inspection of lodging houses. It gives this body the authority to "make such rules and regulations

and such sanitary investigations as they deem necessary for the preservation and improvement of the public health," and states that "it shall be the duty of all local boards of health, health authorities," and other officials to enforce the rules and regulations of the State board.

The medical-practice act, on the other hand, imposed on the board of health the duty of examining and licensing of physicians and midwives. A separate act (approved May 13, 1905) imposed also on the board the duty of examining and licensing embalmers. The medical-practice act allows the members of the State board of health a per diem of $10 "for their services performed in the enforcement of this act" and allows them to fix a sum to be paid for each examination paper rated.

The activities of this body may then be sharply divided into the exercise of licensing functions, for which they receive pay and expenses, and public-health functions, for which they receive actual travel expenses but no pay. In consequence it is estimated that 80 per cent of the work of the board relates to the medical-practice act.

Personnel.—The State board of health consists of seven persons appointed by the governor with the advice and consent of the senate. The persons so appointed hold office for seven years, one term expiring December 30 of each year. It is not prescribed by law that the members of the board shall be physicians or sanitarians or that they shall have any special qualifications, but the custom of appointing practicing physicians has been adhered to. In these appointments qualifications for public health administration or interest in the subject have apparently been given little consideration. With the exception of the secretary, all the members of the present board have, until their appointment, been interested mainly in curative medicine and represent those most interested in the regulation of medical practice, as it has among its members regular, homeopathic, and eclectic practitioners.

Regular meetings of the board must be held in January and June of each year, and special meetings may be called by the president at any time. It is not necessary that any meeting, except that of January, be held in Springfield, and practically all others are held in Chicago, where the practitioners' examinations are also held. The board elects from among its members a president and a secretary.

The present members of the board are:

John A. Robison, M. D., Chicago, president.
T. O. Freeman, M. D., Mattoon.
A. Szwajkart, M. D., Chicago.
R. D. Luster, M. D., Granite City.
E. S. Spindel, M. D., Springfield.
T. B. Lewis, M. D., Hammond.
C. St. Clair Drake, M. D., Springfield, secretary and executive officer.

The sudden death on March 30, 1913, of Dr. James A. Egan, up to that time secretary for a number of years, left the board without an executive officer. The office was not filled until May, 1914, when Dr. C. St. Clair Drake, who had been connected with the Chicago Health Department for a number of years, was appointed. In the meantime, the chief clerk acted as secretary, but as this official's normal duties have to do with the finances of the board and the licensing division, which fully occupy his time, the sanitary work naturally received but little attention.

The duties and authority of the board as prescribed by law are summarized as follows:

"To have the general supervision of the interests of the health and lives of the people of the State," "to have supreme authority in matters of quarantine," and it "may declare and enforce quarantine when none exists and may modify or relax quarantine when it has been established."

To make rules and regulations and such sanitary investigations as it may deem necessary for the preservation and improvement of the public health, and

It is made the duty of all local boards of health, health authorities and officers, police officers, sheriffs, constables, and all other officers and employees of the State or any county, village, city, or township to enforce such rules and regulations as the board may adopt.

To regulate the transportation of the dead.

To investigate and take measures to restrict and suppress any dangerously contagious or infectious disease.

To enforce necessary measures to restrict or suppress any contagious or infectious disease, in any village or city, at the expense of said village or city, whenever the local authorities do not act promptly and efficiently.

To establish and maintain a chemical and bacteriological laboratory for the examination of public water supplies and for the diagnoses of various diseases.

To supervise the State system of registration of births and deaths.

To make an annual report in writing to the governor.

To distribute antitoxin to physicians and others applying for and needing the same.

To distribute typhoid vaccine.

To take measures for the control of ophthalmia neonatorum by supplying nitrate of silver to midwives.

To arrange for the treatment of poor persons who have been bitten or otherwise wounded by rabid animals.

To provide for the inspection of dairies.

To have supervision of all lodging houses, boarding houses, taverns, inns, and hotels in cities of 100,000 inhabitants or more.

To administer the medical practice and embalmers' acts which comprise the examination and licensing of physicians, midwives, and other practitioners and of embalmers, and to have supervision over those medical schools whose graduates are accepted for examination, and of the preliminary education of matriculates intending to practice in Illinois.

Compensation of members.—The members of the State board of health receive a compensation of $10 per day for each day actually spent in the business of enforcing the medical-practice act. In addition, as authorized by law, they have voted a fee of 50 cents to be paid for the examination and rating of each examination paper. This

is usually done by the members of the board and amounts to $5 for each candidate examined. On the other hand, the members of the board receive no compensation for the time spent in the administration of public-health matters whether this be at meetings of the board or otherwise. Possibly on this account it has been customary to hold meetings primarily for the administration of the medical-practice act, and at these meetings to transact such business of a sanitary nature as may be necessary.

Secretary and Executive Officer.

The secretary of the State board of health is also the executive officer. As such he has the same authority as the board of health itself when it is not in session. His action, however, must be based upon regulations approved by the board except in cases of emergency, and even then he can not pass regulations for the board. (Illinois Supreme Court, People *v.* Tait, December 13, 1913.)

The law does not prescribe that the secretary shall be a physician or shall have any special knowledge or qualification, neither does it say that he shall devote his entire time to the duties of the board, these matters being apparently left for the members of the board to decide. The compensation of the secretary as specified by law is at present $3,600 per year. The law specifies, also, that he shall receive his traveling expenses incurred in the performance of his official duties.

It has also been customary for the board of health, acting under the authority given it by the medical-practice act, to vote to the secretary as one of the members of the board the regular per diem of $10 per day for 15 days out of each month, the compensation from the two sources thus amounting to $5,400 per annum. The board evidently considers that it as well as the secretary is acting in a dual capacity, and that the compensation given the secretary as such does not cover the duties he may perform in enforcing the medical-practice act. Furthermore, it is evidently expected that he will devote one-half of his time to the enforcement of that act. Viewing it in that light and in so far as his public health functions are concerned, the secretary of the State board of health is not a full-time health officer, one-half of his time being devoted to duties which are apparently recognized as not being wholly health functions. It is probable that in the past 75 per cent of the time of the secretary of the State board of health has been occupied in enforcing the medical-practice act.

Administration.—The appropriations for the State board of health, as for other departments in Illinois, are made for two years, in figures showing the amounts appropriated for each year. Appropriations become available on July 1, and any amount not used in the first

appropriation year may be carried as a balance to the appropriation for the second year. At the termination of the second appropriation year, i. e., on June 30 of the second year, any balance remaining is still available and may be expended any time before and up to the following September 30.

Appropriations are for one specific purpose or for a group of similar purposes. At present the board is expending appropriations made for the year ending June 30, 1915, but balances will be available until September 30, 1915.

The annual appropriations now available are for purposes which are specified in considerable detail. They may be enumerated as follows:

Salary of secretary of board of health	$3,600
Salary of office force on sanitary work	6,800
Salary of one sanitary inspector	1,800
Salary of registrar of vital statistics	1,500
Salary of janitor	840
For office expenses and for making sanitary investigations, preventing spread of disease, etc	5,500
For farm and dairy investigation	5,000
For expenses of laboratory for investigating diseases	4,400
Salary bacteriologist	1,800
Expenses in investigating colleges and conducting medical practice examinations	16,500
Attorney and law clerk	3,400
Office force in licensing division at Springfield	9,080
Epidemic fund to be used only with consent of the governor	8,000
Sanitary investigation and inspections of lodging houses in Chicago	10,895
Free distribution of antitoxin	29,000
Free distribution of typhoid vaccine	6,000
Treatment of rabies in indigents	3,000
Prevention of blindness in children	3,000
	120,115

In addition, the following were emergency appropriations for the year ended June 30, 1913, which remained available until September 30, 1913:

Epidemic or contingent fund	$6,000.00
Free distribution of antitoxin	7,000.00
For the enforcement of "an act to regulate the practice of medicine in the State of Illinois"	4,500.00
The enforcement of the examining, regulation, and licensing of embalmers.	500.00
For extra pay to office force	500.00
Deficiency appropriation for antitoxin	3,594.25
	22,094.25

Offices.—The Illinois State board of health maintains its main office and laboratory in the capitol building at Springfield, and the office of the lodging house inspector at 109 North Dearborn Street,

Chicago. The executive office is on the southeast corner of the first floor of the capitol building and occupies one large room 50 by 24 feet and two connecting rooms each about 20 by 14 feet. There are, besides, two small storerooms, each about 11 by 13 feet. The ceilings of these rooms are very high, being at least 18 feet, but the ventilation is not the best, and the lighting in the rear room is very poor. The two smaller office rooms are occupied, one by the secretary and the other by the sanitary assistant. The main room is occupied by the chief clerk and the division of medical registration and of vital statistics. All of the office rooms, but especially the large one, are lacking in modern office equipment, especially filing appliances. Files, if they do exist, are not well located, as, for instance, the file used for vital statistics is across the room from the registrar, and the main file for the correspondence is the full length of the room from the chief clerk. It is very evident that this office is badly in need of more room. Some improvement may be obtained by rearrangement and the installation of modern office equipment, but more space is absolutely necessary in order to avoid confusion and to expedite business.

In order to secure such additional space, it was suggested by the writer that a mezzanine floor might be put in the large office room to cover about two-thirds of its area. This would give an additional 800 feet of space. By installing a simple mechanical ventilating system the air supply would be much better than at present.

The office hours are from 9 a. m. to 12 m. and from 1.30 p. m. until 5 p. m. daily, except Saturday afternoon and Sunday. Occasionally in rush seasons, these hours are extended and even night work is required for which no overtime is paid. An annual vacation of two weeks is allowed each employee. All the clerical force is employed under civil-service rules. No efficiency records are kept; such records would be of benefit to both employees and the secretary.

Office routine.—The incoming mail averages 200 letters daily, and in certain seasons will be more than double that amount, and all of this is put on the desk of the chief clerk, except such envelopes as may be specially marked, such as "Report of deaths." These are sent direct to the desk interested. The others are opened by the chief clerk and stamped with the date. Afterwards, they are sent to the various desks, except those on financial matters or on medical registration, which are held by the chief clerk to be attended to by him. A large number of clippings are received from two press bureaus on sanitation, contagious diseases, changes in location, or deaths of physicians, and similar subjects. These go to the desk of the registrar of vital statistics and are distributed by him to those interested.

When any communication is answered a carbon copy is made, which is pinned to the letter or report of which it is an answer. A copy is

also made in one of 17 letterpress copy books. These are headed "Consumption," "Sanitation," "Births and deaths," "Water," "Antitoxin," "Miscellaneous," etc. Each letterpress book is indexed and has a number. The book on sanitation being 44, for instance, would mean that 43 books on this subject were full, properly dated and filed on the shelves of the storeroom adjoining. This seems to be a convenient way of preserving official copies of letters sent.

With the exception of these letterpress copy books there is no central file, nor is there any regular way of filing letters and other communications. The letters that go to the head of a division are kept by him, together with the carbon copies of the answers, and are filed in such way as he may see fit. It is difficult therefore to locate a particular letter that may be required. If such letter referred to two subjects (which would cause it to be sent from one division to another) it would probably remain in the file of the division to which it was last referred.

The filing of various reports and routine matter coming in with regularity, has been left to the ingenuity of the various members of the staff, and many of these files are very well kept and very convenient. Pamphlets and printed reports are not filed at all but stored to await some more convenient time when they may be disposed of.

Letters written have indicated at the top, by initials or otherwise, the letterpress book in which they are to be filed, as T. B. for consumption or San. for sanitation. In the lower left-hand corner are the initials of the author and the stenographer. Letters are commonly signed by the heads of the three divisions and sometimes by the clerks, using the secretary's name and title but indicating the signing party by his last initial under the title "secretary." Routine letters, however, are sometimes signed by the division chief, using his own name. Letters involving important matters and points of law are signed by the secretary personally.

Letters should be signed only by the person whose name is written. If the matter is such that it can be decided by a subordinate, the letter should be signed by that person. The signature of the secretary should always be the genuine signature of that person, with the initials in ink to show who composed the letter to which the secretary has given official sanction by his signature.

While there is no need that the secretary should spend a large portion of his time in signing his name, as many routine letters may be signed by the division chiefs, using their own signatures, letters involving policy or the decision of difficult matters should be signed by the secretary. In no case should his signature be attached to correspondence by a subordinate.

Accounts.—A semiannual estimate for furniture, equipment, and supplies must be submitted. Stationery and printed supplies of all

kinds, are as a rule, furnished on general contract, through the printer expert's office, without cost. If the printer expert is unable to furnish them, the articles are purchased in the open market without taking bids.

According to statute, all furniture must be bought from the board of prison industries at market prices. If this board can not furnish what is required, which is very frequently the case, it gives a release, and the articles are purchased in the open market without bids. In either case, no regular requisitions are sent in, but the articles are asked for as the need arises. Many office sundries are furnished free by the secretary of state.

Appropriations are drawn upon by vouchers. A duplicate copy of each voucher unsigned is filed in the office of the chief clerk of the board of health. Each voucher, with duplicate, receives a file number, a different series being used for each appropriation. These duplicate vouchers are collected in bundles, each bundle representing the charges that have been made against any given appropriation for the quarter.

A detailed report must be made semiannually to the governor showing all expenditures made and all money received by the board. These reports are made for the six months ending March 30 and September 30. They must show for each item the person to whom the money was paid and for what it was paid and the amount. Likewise for money received the report must give the name of the person paying the money, for what it was paid, and the amount. Since in addition to its normal expenditures over 1,000 people pay fees of various kinds to the State board of health, this document is very long and the labor and time consumed in its preparation are considerable. At the end of the fiscal year the two semiannual statements must be condensed into a general statement. It would seem that a considerable amount of this clerical work might be dispensed with.

For the past two years the expenditures have been as follows:

	For year ended Sept. 30—	
	1913	1914
Office and traveling expenses	$5,811.98	$3,953.45
Expense of examinations	20,574.79	16,599.26
Appropriations for salaries	16,055.00	26,807.50
Laboratory	2,219.05	550.41
Dairy inspection	488.17	5,217.35
Enforcing embalmers' act	500.00	1,315.11
Lodging-house inspection	14,456.53	10,382.20
Contingent fund (emergency)	11,853.99	6,985.73
Antitoxin distribution	30,780.20	30,083.89
Rabies treatments	3,029.05	3,209.10
Legal services	1,875.01	.....
Typhoid vaccine	.....	1,815.60
	107,643.77	106,919.60

Over $20,000 annually is paid into the general treasury of the State from fees collected in connection with the medical practice and the embalmers' acts.

A record is kept of the various appropriations in a book headed "Appropriations record," a separate column being used for salaries and for each specific appropriation made. A voucher must be made out in duplicate for every bill to be paid. It must be signed by the president and the secretary of the State board of health and be approved by the governor. It then goes to the auditor, and after approval by him a treasury warrant is issued which is a draft good at any bank. Before the voucher leaves the office of the State board of health the amount is entered in the proper column in the appropriation record, in black ink, and is subtracted from the balance, which appears in red ink. The balance on hand in any appropriation is therefore always apparent, being the lowest figure in each column. All vouchers are stamped at the bottom with the serial number and are sent to the governor's office with a letter of transmittal. No record is kept showing the cost of any individual work, and there is no way of separating the cost of the various operations, except by going over the vouchers item by item.

The system of having the daily balance of each appropriation always available is very simple and effective. Requiring the signature of the president of the State board of health on every voucher is a procedure which apparently gives no additional protection but adds to the work and causes delay in the payment of bills. The president of the board lives in Chicago, and all vouchers must now be transmitted to him for signature and then returned to Springfield before payment can be made.

The system of receiving printing and similar supplies without cost to the board and of purchasing in the open market without competitive bids is not an arrangement calculated to encourage economy.

Division of Vital Statistics.

This division occupies a part of the large office room of the State board of health and has the following personnel:

	Per annum.
Registrar of vital statistics	$1,500
1 clerk	1,200
1 clerk	1,000
1 stenographer	900

There have been many attempts made to provide for the registration of births and deaths in Illinois.

The law entitled "An act for the establishment of medical societies," which was approved March 24, 1819, but repealed January 23, 1821, made it the duty of every physician to keep an account of

births, deaths, and diseases occuring within his practice, and to report these to the president of his society for record and publication.

An act of 1843 provided for the voluntary registration of births and deaths with the county clerk, but was productive of very incomplete results. Under the act of 1877, creating the State board of health, that body was given supervision of the State system of registration of births and deaths. It provided that the State board of health should "recommend such legislation as shall be deemed necessary for the thorough registration of vital and mortuary statistics throughout the State." The law provided for the registration of births, marriages, and deaths by the county clerks and required that birth and death reports should be made by "physicians, midwives, and in their absence parents, nearest of kin, or householder." This part of the act of 1877 was amended by the act of May 11, 1901, which went into effect January 1, 1902, and provided for registration of deaths by requiring a burial permit before removal of the body.

This latter law was in effect only 18 months, having been repealed July 1, 1903, as it was said to work great hardships on those living in the country, especially where roads were bad and where a journey of 10 or 15 miles was often difficult.

The figures of these years show that this law resulted in a much larger registration of deaths than before or after, although there were undoubtedly many violations on account of ignorance. The death registration for the State in 1902 was 61,144. In 1903, during half of which year the law was in operation, it was 61,205, but in 1904, when the repeal of the law was more generally known, it fell to 58,809.

The act of 1903 mentioned made it a duty to report births and deaths, and offered the same fees, this time to the reporting party, and prescribed the same fines and penalties as in the previous act, except that a permit to dispose of the dead was not required, this being left without regulation except as made by the local county, township, or city governments. This law of 1903, with slight amendments as to payment of fees, is now in force.

It will be seen that the threat of penalties will not bring out a registration, even if as long as 30 days in which to make the report is allowed, but that compulsory burial permits based on death certificates, are effective.

Attempts have been made to improve this situation, and a bill was introduced in 1913, based on the model law recommended by the Bureau of the Census but amplified and containing special provisions affecting Chicago. Although the prospects of this bill appeared bright and rural opposition has undoubtedly diminished on account of improved education, better roads and other means of communication, it failed to become a law.

The present law.—The present law provides in general as follows:

The physician or midwife attending the birth of a child must make a report to the county clerk within 30 days after the occurence of the birth, using the form prescribed by the State board of health, except that in cities of 50,000 or more inhabitants these reports may be made to the city commissioner of health, if the commissioner so requests. When no physician or midwife has been in attendance, this duty devolves upon the parents or the householder.

The person making the report shall be paid the sum of 25 cents. The city commissioner of health receiving the reports shall deliver them to the county clerk not later than the 10th day of the month. All births recorded must be reported by the county clerks quarterly to the board of health and in the manner prescribed by the board.

Outside of those cities where a burial or removal permit is issued only on presentation of a death certificate, physicians and midwives are required to report to the State board of health at Springfield, within 30 days, deaths occurring among their patients. Within these cities the death certificates received on issue of burial permits are to be forwarded to the State board of health at Springfield before the 10th day of each month. Coroners must also report to the State board of health within 10 days after notification, deaths coming under their supervision, except in cities where burial permits are required. A fee of 25 cents is paid to every physician, midwife or coroner making a report of a death.

Commissioners of health forwarding death certificates to the State board of health are entitled to receive 10 cents for each of these certificates. Death certificates received by the State board of health are required to be recorded within 10 days after their receipt and to be delivered before the 1st day of the succeeding month to the proper county clerk, together with a list giving the names and addresses of the persons from whom the certificates were received. The State board of health must prescribe the manner in which the records of births and deaths shall be kept by the counties and prescribes the form of the birth and death certificate. The fees allowed are chargeable to and payable by the county. The penalty for the violation of this act, which is classified as a misdemeanor, is a fine of not less than $10 and not more than $100 or imprisonment in the county jail not to exceed 30 days, or both.

Operation under the law.—In cities of over 50,000 inhabitants, where the commissioner of health requests, reports of births are made to him. In other cities and outside of cities these reports are made direct to the county clerk. When made to the commissioner of health, the report must be transmitted to the county clerk on or before the 10th day of each month. The law requires that reports of births shall be made within 30 days after their occurrence, but as the whole system is practically voluntary, they are received whenever sent in.

Stillbirths, where the period of gestation is seven months or more, are to be reported in the same manner as births.

Each county clerk makes a quarterly report of births recorded by him to the State board of health on a form which gives the number of births, sex of the children, and the nativities of the parents. He reports also the number of twins, triple births, and stillbirths. The form of this report, as well as the form for the original birth certificate, is prescribed by the board of health. The blanks themselves, however, must be furnished by the county clerk. Births must be reported

by the physician or midwife in attendance or, if there is none, by the parent or by the householder, and the one making the report is paid a fee of 25 cents. These fees are paid by the county, and the county clerk's office is made the final repository of the certificates.

Death certificates are also permanently filed with the various county clerks and reach them in the following manner: One hundred and seventy-eight cities in the State have ordinances requiring a burial permit from the commissioner of health, city clerk, or other designated city official before the body may be removed, and this is granted only on presentation of the proper death certificate. These cities are known as registration cities. Elsewhere, reports of deaths are to be made direct to the State board of health. The city official who receives the death certificate and issues the burial permits must forward the death certificates to the State board of health before the 10th of each month. With these is sent a letter of transmittal which gives the name of each of the deceased persons.

When received, death certificates are routed through the State board of health office as follows:

The envelopes are opened by the registrar or by a clerk and the certificates are stamped with the date of receipt. The registrar examines each certificate and marks on it with a red pencil the number of the cause of death in accordance with the international list of causes of death. They then go to a clerk's desk and accumulate until about the 20th of each month, except the Chicago certificates, which arrive promptly on the 10th and are disposed of at once. The certificates are first assorted by counties and cities. Each certificate is then given a serial number and is filed temporarily with a blank statistical card on which has been stamped the same serial number as the certificate. When this is complete the statistical cards and the records of death by causes and by counties are filled out as time is available.

The records kept by the State registrar are entirely statistical and consist of (1) small statistical card, one for each death certificate; (2) card record by causes of death; (3) card record of total deaths per county.

On the first or statistical card, besides the serial number and month, are recorded also the number of the county, the disease number, the duration of the illness, the number of the city, whether colored, Chinese, or Japanese, whether single, married, widow, divorced, whether born in the State of Illinois, elsewhere in the United States, or foreign, occupation, age, and date of death. A white card is used for males and a pink one for females.

The second or cause of death record is on 9 by 11 cards, one for each cause of death according to the international list of causes of death. Each card covers one calendar year and has 102 columns (one for

each county) and 12 lines (one for each month). In each space two numbers are entered, one in red representing the number of deaths from that cause in the registration cities and one in black representing such deaths outside of the registration cities. Under Cook County the figures from Chicago are registered in purple ink.

The third or record of total deaths by counties card gives the serial number of the first and last certificates received from each county within each month. From this the total number of deaths occurring in any county may be deduced at once.

The statistical cards above referred to are filed in separate drawers in the office of the State board of health, one for males and the other for females; they are separated and filed by counties in serial order according to their numbers. These cards are finally taken out and the various facts for the year tabulated by hand. All the cards must be gone over each time to take off each item, and as there are approximately 65,000 of these the work is considerable. It is estimated by the registrar that it requires the work of his two clerks and one stenographer, supervised by himself, three-fourths of the time for at least two months to complete this tabulation. The statistical cards are then of no value and are destroyed.

The original death certificates are sent as promptly as possible, which is usually within a month, to the county clerk of the county where the death took place, and with these is sent a letter of transmittal giving a list of all those signing death certificates or transmitting them. This letter was probably required for the purpose of making a check on the extent of registration of physicians, but so far as known no use is made of it.

No instructions have been issued by the board of health in regard to the manner in which these records are to be kept by the county clerks, but so far as investigated a copy of each certificate is made in an indexed "Register of death certificates," and the original certificates are filed in a more or less available manner.

Results of present system.—Although the law provides a penalty for failing to register births and deaths, this is practically never enforced, so that the only inducement is the fee of 25 cents. Over half of the population of the State is included within the registration cities, and here the recording of death certificates is well enforced. Outside of these cities the recording of death certificates is very poor, probably below 50 per cent. It is estimated after comparing those parts of the State under the burial-permit ordinance with others and after estimating the normal death return from the United States Census Reports, that only 73 per cent of the total deaths are recorded in the State as a whole.[1]

[1]Estimate of Dr. T. H. D. Griffitts.

In this connection the report from the bulletin of the Illinois State board of health, October, 1912, is of interest, as it gives a table of the reported births and deaths during 1911 and the rate per 1,000 population, together with the percentage of the population amenable to municipal ordinances requiring burial permits. In this table a direct relation may be seen between the death rate and the enforcement of the burial-permit ordinances. The birth registration, not having any such incentive, is not so complete. It is interesting to compare Cook County, where 98.3 per cent of the population were under the burial-permit ordinance, with Hardin County, where burials may be made without death certificates. In the former the reported death rate for that year was 14 per thousand and the birth rate 12.7; in the latter the rates were 2.3 for deaths and 16.2 for births. This plainly indicates, of course, that the compulsory burial permits influence the death returns, but that birth registration, which relies upon moral obligation and a small fee, is neglected in the cities as well as in the country. It is estimated that only 67 per cent of the total births are recorded.[1]

The State board has lately been sending out circular letters especially to the county clerks calling their attention to the fees and asking what provision has been made for their payment. It has been found that provision has been made for the payment of fees to those registering births and deaths in all of the counties. This publicity has somewhat improved the total registration.

New legislation needed.—Illinois is a rich and intelligent State, but has continued to remain among those that do not enforce the registration of deaths, and consequently is not in the "registration area" for deaths. The model law as recommended by the United States Census Bureau should be enacted, or a law embracing all its essential features. The advantages of such a law and the details of its administration need not be here discussed.

In addition to providing proper registration of the dead, a procedure demanded by sentiment and necessary for protection, the model law would correct other defects of the present system. It is pertinent to refer to these defects somewhat in detail. Birth and death certificates are now filed in 102 county seats, and probably in all of these they are recorded twice, that is, a copy is made and the original is filed. In the office of the State board of health at the Capitol, on the other hand, no record of names or copies of certificates are preserved for reference. There should be a central office in the State where original certificates of births and deaths are filed, so that any certificate desired could be found at once, and would not require the search of 102 offices.

[1] Estimate of Dr. T. H. D. Griffitts.

The law enforcing death registration was repealed, because in certain sections a journey of 10 to 15 miles over bad roads was sometimes required to obtain a burial permit. Conditions have now changed, there are more good roads, electric cars and telephones, than 12 years ago and there are over 3,000 licensed embalmers and over 300 antitoxin agents that may be called upon to act as subregistrars. It would thus be entirely possible to so cover the State that to register a certificate of birth or death would require a journey not greater than the country practitioner is expected to make when called to see a patient. The 30 days in which to register a birth allowed by the present law, is often exceeded, but is entirely too long. It should be made not more than 10 days, as required by the model law, with a provision allowing municipalities by ordinance to further reduce the time. Chicago is considering making the limit 24 hours, as it is necessary to have immediate notification of births if the information is to be of the greatest use to infant-welfare nurses. Midwives, who are prohibited from taking any curative measures, should not be allowed to sign death certificates as the present law sanctions. This would be corrected by the model law.

Changes advisable under present law.—A considerable improvement is possible under the present statutes with the present or slightly increased appropriations. Publicity and education of the people, circulars to physicians, medical societies, midwives, and embalmers will do something, as the circulars already sent to the county clerks have done. The State of Indiana sends a small book on "The care of the baby" to the mother of every infant whose birth is properly registered in that State, and the governor sends her a letter not only extending congratulations but explaining the importance of the birth certificate to the State and to her newborn child.

The present system of handling certificates at Springfield consumes more time than is necessary, and the records kept are purely statistical. It is to be hoped that laws will be enacted at once making the board of health the custodian of the certificates for the entire State, and such legislation must inevitably come in time. In the meantime a record should be begun by making copies of all death certificates received and by requiring that copies of all birth certificates be furnished by the county clerks. At least the name, sex, color, and nativity of parents should be required in each case. It is recommended that these copies be filed in a permanent manner either in book form or otherwise, and that a card index be made on 3 by 5 cards, one for each certificate, in four sets, viz, male and female deaths, male and female births, each card to have name, county, number, date, and serial number.[1] Death certificates from Chicago,

[1] Parts of this index have been begun.

about half the total number, need not necessarily be copied, as an indexed file is kept at the office of the Chicago commissioner of health.

The statistical card should be discontinued, and instead the data should be recorded on perforated cards. The present system of checking off data on cards and tabulating by hand consumes a great deal of time. It is estimated that the use of perforated cards would save enough time to allow the copies of certificates and the index recommended to be made by the present force. A punch machine may be bought for $75, and a sorting machine may be rented for $20 per month.

The letter of transmittal giving names of each decedent, which is required of local commissioners of health, is of no use to the State board of health, and should be discontinued.

For economy and to obtain uniformity all blanks should be printed by the State board of health and distributed free through local officials and any other available agency. At present the form is prescribed by the board and the county clerks must supply the blanks, but this necessitates a greater total expense, and uniformity, especially in the size of the blanks, is lacking.

Division of Sanitation.

Under the division of sanitation are included practically all the purely health activities of the State board of health and some that are not strictly of a sanitary nature.

These activities are summarized as follows:

Collection of information regarding the existence of communicable diseases in the State.

Assistance to local health officers in controlling communicable diseases, and in cases of emergency taking charge of epidemics at the expense of the local authorities.

Advising local authorities as to their powers and duties.

Dairy inspection.

The distribution of antitoxin, antityphoid vaccine, and similar remedies.

The enforcement of any special laws on sanitation.

The collection and transmission of reports of occupational diseases, and some phases of publicity in health matters.

The office force of this division consists of:

	Per annum.
1 clerk, known as "sanitary assistant"	$1,600
1 clerk	1,200
1 stenographer	900

The field force consists of:

1 medical inspector	per annum	$1,800
2 medical inspectors when on duty	per day	10
1 dairy and sanitary inspector	per month	100

Requirements of the law.—The State board of health act, paragraph 2, specifies the duties and powers of the State board of health as follows:

It shall investigate into the cause of dangerously contagious or infectious diseases, especially when existing in epidemic form, and shall take measures to restrict and suppress the same, and whenever any such disease becomes or threatens to become epidemic in any village or city and the local board of health or local authorities shall refuse or neglect to report sufficient measures for the restriction or suppression or to act with sufficient promptness or efficiency, or whenever they shall neglect or refuse to promptly enforce efficient measures for the restriction or suppression of such diseases, the State board of health or its executive officer may enforce such measures as the board or their executive officer may deem necessary to protect the public, and all necessary expenses incurred shall be paid by the city or village for which services are rendered.

Morbidity reports.—Information regarding the existence of communicable diseases throughout the State is obtained from monthly reports of various health officers, made on return post cards, from newspaper clippings, and from voluntary reports made either by local officials or by individuals.

There are over 1,000 cities, towns, and villages in the State of Illinois, the majority of which are incorporated. A card index is kept showing some city official of each and the name of the health officer, if there is one. About 80 per cent of these cities and villages have some form of health organization. If there is none, the mayor or village president is responsible under the law.

On the first of each month return postal cards are sent out to the proper official in each one of these cities or villages. It is requested that the attached postal card be made out and returned promptly whether any cases of the diseases enumerated have occurred or not. If any of the diseases listed are not officially reported under the local ordinance, an estimate of their number is nevertheless requested. These cards call for the number of new cases during the month and the total number of cases at the end of the month, of smallpox, diphtheria, scarlet fever, typhoid fever, measles, whooping cough, chicken-pox, acute poliomyelitis, and cerebrospinal meningitis. Addressing these postals and their mailing requires the work of one clerk for six or seven days. About 85 per cent of these return post cards come in promptly and are tabulated on a large sheet by counties and by cities and villages. Follow-up requests are sent to those who fail to send the report, and if this does not suffice, the old report is asked for when the next postal card is sent out. Tabulation is made on the typewriter.

The work of addressing and sending out these postal cards, of checking up the cards that come in, of following up those that are delinquent, and then of tabulating the disease under each place requires a considerable amount of clerical work. Except in the cases

of an epidemic or in the case where a disease is steadily increasing, figures obtained from these sources are received too late for epidemiological use.

To facilitate the reporting of communicable diseases, it has been recommended by the State board that every municipality pass ordinances requiring reports of cases of communicable diseases. This requirement is included in the model health ordinance that has been prepared. It is believed that a majority of the cities and villages of the State have some provision for obtaining this information, but no data have been collected to show how many have ordinances, the nature of them, or to what extent the reports are complete. Replies from inquiries sent out to over 1,000 municipalities indicate that not over 20 per cent have made any appropriation for the control of disease. In small communities, however, the existence of a contagious disease is usually known to every one. Besides the regular reports received at the end of the month, similar information is obtained from voluntary reports sent in by local officials, by complaints from private individuals, and from newspaper clippings.

Correspondence.—Besides the records, the division keeps a general file. To answer inquiries and to give information, especially to local officials regarding their powers and duties, the telephone is used to a great extent. Reports of progress in connection with epidemic work, and reports from medical inspectors also, are often made over the telephone, and of these no records are kept. A record of inspections is made giving the name of the inspector, by whom requested, its purpose and date. The report of work done does not enter into this record, as each inspector reports by letter, making such statements as he deems best. There is in this way no uniformity in these reports.

Letters of inquiry from every source are answered in full, although many are of trivial nature. In dealing with the local authorities they are urged to act, and for this purpose are given moral support, or an inspector is sent to help them if the situation warrants. The threat to take charge of local sanitary affairs is not made until the resources of persuasion are exhausted.

As much sanitary work is done by other departments of the State, many inquiries are referred back by telling the writer where to apply for information. This proceedure may be sufficient for inquiries not of a sanitary nature, but as this office is in a position to gather information concerning sanitary work and regulations of all departments of the State, it should be able to give information on any subject relating to the improvement of health. It is important for the board of health to encourage the interest of the people in all health matters, and it is assuredly discouraging for a person who

has written a letter, often at the expense of considerable effort, to receive an answer, however courteous, directing him to write to another division of the State government.

Ordinary letters received, with carbon copies of the answer, are filed in vertical files, by counties. Important letters and reports are grouped by subjects in folders or in baskets, and when the subject is closed all the matter pertaining to it, including the newspaper clippings, is put together, backed with heavy manila paper, and folded twice for filing in a series of small horizontal pasteboard drawers. On the front of each drawer are marked the first and last serial number of the papers contained therein. A card index by subject and by place is kept of this file. These index cards refer to the serial numbers and make the files easily available either by subject or by geographical position. Folding the papers is a disadvantage. The temporary files give rise to considerable confusion and delay, as they are allowed to accumulate, and the number of baskets multiplies so that the papers are not easily found.

Small spot maps, which give a good general idea of the geographic distribution of communicable diseases in the State, have been recently adopted. Larger maps, dividing the State into a number of sections and giving more details, are recommended.

Inspectors.—The medical field force of the board is a part of the sanitary division and consists of three physicians. One lives in the southern part of the State, and receives a salary of $1,800 a year and expenses. Another lives in the central part (Springfield), and the third in the northern part (Rockford). The last two receive $10 per day and expenses while on duty. These inspectors have no fixed duties and responsibilities and no definite territory to cover, but act entirely under orders of the Springfield office. They are sent out usually on request of the local authorities to make or confirm diagnoses of communicable disease, to instruct the local authorities, and to trace the origin of disease. They do not as a rule investigate anything not mentioned in the request or complaint.

The enforcement of the sanitary regulations is left to the local authorities, but if the advice given by the inspector is not followed, and especially if the situation becomes alarming, the local health authorities are required to surrender their authority to the State board of health, and the board takes charge of the situation at the expense of the local community. The inspectors have also had charge of such special work as dairy inspection, flood relief, and activities that will be described later.

Smallpox.—For the year ended October 31, 1914, there were reported 3,650 cases of smallpox in the State. This is an increase of 70 per cent over the number of cases reported in the previous year. The type of this disease is, as a general rule mild, but the number

of cases has been steadily increasing for a number of years. A large part of the time of the three medical inspectors is occupied therefore in instructing local health officers regarding the measures to be taken in regard to smallpox.

Vaccination has been largely neglected throughout the State for a number of years, so that a considerable proportion of the younger people are entirely without this protection. The mild nature of the disease for the most part present, has encouraged this neglect, and as there are no laws that compel vaccination and as the court decisions are generally unfavorable to that measure, little has been done except to await the presence of an epidemic and then resort to such vaccination, quarantine, and fumigation as can be enforced. The State assumed control of the smallpox situation at Zion City, where 146 cases occurred in November and December, 1914, and where the Zionists refused vaccination.

The regulations of the State board of health require that all cases of eruptive disease shall be reported by the attending physician to the local health authorities and by them to the secretary of the State board of health. They require that smallpox be rigidly quarantined, and that all persons residing on the premises be confined there until after the patient is removed and the house and contents thoroughly disinfected. They require that a yellow flag or blanket bearing the word "Smallpox here" shall be hung in a conspicuous place, and that any recently vaccinated person exposed to the disease shall be quarantined for 12 days, and have his person and clothing disinfected before release, or shall be quarantined for 20 days if not recently vaccinated. Persons who submit to immediate vaccination may be kept under observation instead of being quarantined.

It is very evident that in the country, especially where the disease is mild, these rules in regard to quarantine are not enforced rigidly. A circular just being sent out insists that quarantine means "in the house," and not simply on the premises. It strongly recommends vaccination, and calls attention to it as the best means of avoiding both the disease and the quarantine. In disease control, quarantine of contacts and fumigation are being used less and less. Stricter supervision of the patient to stop direct contact, and in the case of smallpox the encouragement of vaccination are undoubtedly more effective.

A number of unfavorable court decisions regarding vaccinations have, however, made the control of smallpox more difficult. In the case of Potts *v.* Breen (167 Ill., 67) the Supreme Court declared that the vaccination of school children can not be enforced under a rule of the State board of health, unless smallpox exists in the community or unless there is reasonable cause to apprehend its appearance.

In the case of Lawbaugh *v.* Board of Education (177 Ill., 572) the court adhered to those principles and declined further to discuss them. In the case of People ex rel. Louise Jenkins *v.* Board of Education further restrictions of the power to compel vaccination were placed on boards of education and health officials, the court stating among its conclusions that an "ordinance making vaccination a condition precedent to right to attend school, is void."

Special legislation giving the State or local health authorities power to require vaccination before the disease is actually present, is urgently needed.

Diphtheria.—During the year ended October 31, 1914, there were 11,200 cases of diphtheria reported, which is a decrease of 16 per cent compared with the cases reported for the previous year. During the year 1913 there was an epidemic of this disease in the central part of the State which was absent during the period covered by the last report and accounted for the falling off in the number of cases. The State has since 1907 distributed antitoxin free to all physicians both for curative and prophylactic uses, and the State laboratory makes laboratory diagnoses free, but this latter service is not emphasized nor much used. A circular of 31 pages issued in 1911 on "Diphtheria, its Prevention, Restriction, and Supervision," deals with the diagnosis of the disease, the manner of its spread, prophylaxis, treatment, and disinfection. It is a general discussion of the subject rather than definite information, and is confusing.

Concise information and revised rules on diphtheria should be published. It is suggested that two circulars be issued each of a single page, one for the public, and the other for the physicians and health officers. These should mention only the essential points. Physicians should be urged to give antitoxin early. Regulations should be issued requiring every diagnosis to be confirmed by laboratory examination. Isolation of contacts, including all school children where the disease is prevalent, should be based on cultures made at the State laboratory or its branches in the absence of local laboratories.

The traveling medical inspectors should be given definite instructions regarding this disease, not only as to its epidemiology but in order to bring about uniformity of action by the different inspectors. They should carry with them both swabs and antitoxin when the diagnosis of diphtheria is in question, and should be able to give the local physician practical demonstrations of all procedures necessary in addition to verbal instructions as at present.

Scarlet fever.—There were 8,100 cases of scarlet fever reported in the year ended October 31, 1914, which is a decrease of 47 per cent compared with the cases reported in the previous year. A bulletin was issued in 1911 on "Scarlet Fever, Its Prevention, Restric-

tion, and Suppression," which, however, does not give definite rules except that general disinfection is insisted upon. The period of quarantine is placed at from five to eight weeks and placarding and reporting of cases to the local health officer are required.

As in diphtheria, definite and concise rules should be prepared for the inspectors and for local health officers, supplemented by an equally brief article for popular distribution. Suppressive measures should be directed especially against the nose and mouth secretions of patients.

Typhoid fever.—During the year ended October 31, 1914, 4,117 cases of typhoid fever were reported, a decrease of 8 per cent compared with the number reported the year previous.

A bulletin on this subject issued in 1912 is available for distribution. In it the duties of the attending physician and health authority are stated concisely.

Investigations of epidemics of this disease are made by the medical inspectors of the board and by the State water survey. Advice as to measures of control is given by the inspectors or by letter and copies of the bulletin. The work of the inspectors is of an emergency nature and the board has no means of making complete sanitary surveys. Dairy inspection by the board of health and similar work under the food commissioner have some influence on the disease as conveyed by milk, and the systematic studies of water supplies and sewage disposal, made by the State water survey, helps to control typhoid fever as a water-borne disease. These agencies will be mentioned later. In addition the board of health has begun the free distribution of antityphoid vaccine.

Tuberculosis.—Beyond a small amount of publicity in the monthly bulletin, nothing has been done by the State board of health to combat tuberculosis. This disease is not reportable to the State authorities, and outside of Chicago there is no free hospital especially for tuberculosis. The so-called Glackin law (approved June 27, 1913) amends the cities and villages act, however, to allow cities to assess a tax of 1 mill beyond the total tax limit of 3 per cent for tuberculosis hospital purposes.

The unofficial organizations active in extending this work will be mentioned later. With these and the local authorities the board of health expects to cooperate in the future.

Other communicable diseases.—The board issues no bulletins or regulations on the other communicable diseases reports of which are collected, but gives aid and advice by letter, by telephone, or when warranted, through its inspectors. It would be advisable to have all these diseases made the subjects of official regulations of the board, especially chicken-pox, since the mild smallpox prevalent in Illinois is frequently called Porto Rican chicken-pox in the country districts.

Distribution of antitoxin.—In 1905 a law was passed providing for the distribution of diphtheria antitoxin, that used by the poor to be paid for by the counties, others to pay "a reasonable price."

In substance this law is as follows:

The Illinois State Board of Health is required to appoint one agent in each county seat, and others if advisable, for the distribution of diphtheria antitoxin. Agents shall sell such antitoxin at "a fair and reasonable price to physicians and others needing it."

If a person needing antitoxin can not buy it, it will be furnished on an order from the overseer of the poor, or supervisor of the township, to be paid for by the county.

The board of health is to make the necessary rules and regulations and is to pay for the expense of appointing agents and of accounting, from funds appropriated for making investigations and for the prevention of the spread of diphtheria and other contagious diseases.

Two years later (1907) the appropriation bill provided that antitoxin should be furnished free to all, and this precedent has been followed ever since. Liberal appropriations have been made. The present one is $29,000 per year with an extra $7,000, making $65,000 available for the two years. It is specified that of this money $10,000 per year shall be spent in cities of more than 100,000 inhabitants, which means in Chicago.

Antitoxin agents.—An agent, usually a druggist, has been appointed in every county seat and in every large town throughout the State, a total of over 300 agents outside and 50 inside the city of Chicago having been so appointed. The number varies from time to time on account of resignations or appointments of extra agents.

A contract is renewed annually for the antitoxin, which is furnished in 1,000, 2,000, 3,000, and 5,000 unit packages. These bear the labels of the Illinois State Board of Health and cost 35, 70, 85 cents, and $1 respectively.

Each agent is allotted an amount of antitoxin thought to be sufficient for a year and, within this allotment, may order and receive supplies direct from the manufacturer. A reserve supply is also kept on hand in the laboratory at Springfield in order to be prepared for a possible epidemic.

Attached to each package of antitoxin and bearing the same serial number is a receipt in duplicate with carbon between. The physician must come in person and sign the receipt, or send a messenger, in which case he must sign the receipt as soon as possible. The original receipts are forwarded to the State board of health when a number have accumulated, and the duplicates are retained by the agent.

Inclosed with the package the physician finds a card, one side of which is for reporting clinical data of the case. On the reverse of this card is a blank space for report in case the antitoxin was used for immunizing.

These cards are sent by the physician to the State board of health office, where the information is tablulated. As the statements from

the manufacturers are received the packages are charged by serial number to each agency in a loose-leaf ledger, and the account is completed after the physician's receipt and the clinical record have been received. The clinical reports are tabulated and then destroyed, as are the physicians' receipts.

Discussion.—Illinois distributes antitoxin free, for use in all cases. For this purpose the annual expense is $32,500. Add to this $6,000 appropriated for free typhoid vaccine, and the total is $38,500 per year. Antitoxin is by far the largest item in the budget of the board of health and represents more than that expended in all strictly disease prevention work. Its free use is undoubtedly to be encouraged. It saves many lives and, according to the testimony of those in charge of the distribution both at the board of health office and at the distributing points, the service is much appreciated. As a point in favor of the free distribution, it is emphasized that the serum annually distributed would cost the citizens nearly $200,000, as the retail price is from five to seven times that paid by the State board of health.

Diphtheria antitoxin should certainly be within reach of all in time of need, and it should be administered as soon as the nature of the disease is suspected. The present system permits this, except that it limits the number of places where antitoxin is obtainable to one in each city, except Chicago. Furthermore, while the majority of druggists, appointed as distributors, perform their duties faithfully, resignations of those who see nothing but the trouble are constantly coming in, and these must be persuaded to continue or new agents must be found to take their places.

In the interest of economy and in order to make it more widely available it is suggested that diphtheria antitoxin be given free as at present, provided the physician certifies on the face of the receipt that the patient is not able to pay and that to others the antitoxin be furnished at the cost price to the State plus 20 per cent which would go to the distributing agent as a commission. By this arrangement about two-thirds of the present expense would be avoided and the antitoxin would be even more available than at present, as new stations would be established, and there would be no more formality in obtaining the remedy than at present. Under these conditions agents could be useful to the State board of health in many ways. They would not only distribute antitoxin and other similar remedies, but could, for instance, maintain culture stations and serve as centers for the dissemination of sanitary information. In following this proposed plan there should be no disposition to go beyond the certification of the physicain as to the lack of ability of the patient to pay for the antitoxin.

Typhoid vaccine.—An annual appropriation of $6,000 for two years from July 1, 1913, was given by the last general assembly for the free distribution of antityphoid vaccine. Beginning January 1, 1914, the antitoxin agents who were willing to handle this vaccine were supplied with it as rapidly as possible. Up to November 1, 1914, about 5,000 packages had been put in the hands of the agents and since then the supplies have been sent out much more rapidly. It is believed that the various agents will soon be fully supplied and the appropriation exhausted.

The vaccine furnished is put up in packages of three doses, one in syringes at a cost to the State of 51 cents and the other in ampules, at a cost of 24 cents per package.

Rabies.—Three thousand dollars a year is provided for the treatment of rabies in those residents of the State who are not able to pay. To obtain this treatment the patient must obtain a certificate from a doctor to the effect that he has been bitten by an animal, rabid or supposedly so, and must also be certified by the overseer of the poor as not being able to pay for treatment. The patient is then sent by the county commissioners or the board of supervisors to the Pasteur Institute in Chicago. The cost of this treatment is $50, which includes the subsistence of the patient. During the year 1914 59 patients received this treatment, but no report of results was made to the board. An effort is made to obtain the brain of the animal supposedly rabid in order that it may be examined and the diagnosis confirmed. This, however, is not always possible.

Prevention of blindness.—There is a law approved June 21, 1895 (L. 1895, p. 152), entitled "An act for the prevention of blindness," which requires that should any midwife or nurse having charge of an infant notice that one or both eyes are inflamed or reddened, any time within two weeks after birth, the nurse or midwife must report same in writing within six hours to the health officer or some legally qualified practitioner of medicine. It is believed that the existence of this law is not generally known.

Three thousand dollars a year were allowed by the last general assembly for the prevention of blindness in infants. With this it was intended to supply midwives with a 1 per cent nitrate of silver solution in convenient packages and to encourage its use in the eyes of every newborn infant. However, as the medical practice act prohibits the use of medicines either internally or externally by midwives, there was an understanding that the law would be amended to allow the use of the prophylactic. But the law was not so amended and none of the prophylactic packages have been issued, as it was not believed proper by their issuance to sanction the violation of the medical practice act by midwives. The present secretary, however, has decided that the appropriation which was made for a specific pur-

pose is sufficient authority and is having nitrate of silver solution put up in wax capsules, one sufficient for each eye, and will begin the distribution of these very shortly.

Vaccination against smallpox.—No provision is made by the State of Illinois either for the free distribution of smallpox vaccine or to encourage its sale. The failure to provide this necessary prophylactic is very striking in view of the fact that the State does provide diphtheria antitoxin and antityphoid vaccine free. Smallpox is reported present in practically all parts of the State, and the proportion of unvaccinated persons is apparently increasing.

When inquiries are received by the State board of health from local physicians or from county or city authorities regarding vaccination, they are told to order the points through their drug stores. It is believed that the free distribution of smallpox vaccine is very important and should be undertaken by the State.

Dairy inspection.—The last general assembly allowed $5,000 a year to the State board of health for dairy inspection. With this small sum no attempt was made to cover the entire State, inspections being limited to dairies in its northern part and the dairies supplying milk to Springfield. This work in the northern part of the State was under the supervision of Dr. C. C. Crawford, medical inspector of the State board of health for that section. Under him were one regular inspector and four temporary inspectors, employed for the summer months only.

From June 1, 1913, until May 1, 1914, 3,745 dairies were inspected. Of these, 1,498 were in what is known as the Chicago district, that is, within about 50 miles of Chicago. The remaining 2,247 were in in the north-central part of the State, and were the dairies supplying milk to Chicago or other cities.

By agreement with the Chicago health department, those dairies in the Chicago district which had already been inspected by the Chicago inspectors and reported upon as deficient in some particular or had refused to carry out the instructions given were inspected by the State board of health inspectors. In many cases the faults were found to have been remedied so that the dairies could be placed again on the "fair list" and be allowed to sell the milk in Chicago. The others were notified either to comply within 30 days or to stop selling milk altogether.

The use of United States Government score cards in Illinois was begun for the first time during the past year, and it is the intention to use it regularly in the future. When making inspections each item on the score card is rated while at the dairy. Duplicate records are made, the original on thin paper and the duplicate on a card. The old form score cards, which cover some 12 items, especially on the presence of communicable disease and the care of milk,

are also filled out. While making the inspection, instructions as to the corrections needed are given.

The original record goes to the local health authorities; the duplicate goes to the State board of health, as does the old form card. A duplicate copy of the old form card is then made out and sent to the local health officer interested. Confirming the instructions given by the inspector while on the grounds, a letter is written by the State board of health instructing the owners of the dairy what must be done and giving them their rating.

Although the board of health claims authority to close any dairy that fails to conform to its requirements, it has not attempted this, and does not anticipate doing so unless a contagious disease is discovered on the premises. The dairies in the vicinity of Springfield that were inspected have been notified for the second time of their record and the changes needed. It is the intention to publish the records of all the dairies as soon as sufficient time in which to make recommended changes has elapsed.

The inspection of dairies sending milk to Chicago is made by the department of health of that city, and sanitation is enforced by refusing to accept milk from establishments falling below a certain grade. As previously stated, some of the latter dairies have been inspected by representatives of the State board of health. In other localities such State inspections as have been made are reported to the nearby city authorities for any action they may wish to take.

The State board of health has never attempted to make any bacteriological or other laboratory examinations of milk except of an occasional sample. This is a very valuable check, and while it may be done by the local authorities it is necessary that the State authorities should also have means of making laboratory examinations, especially in those instances where a satisfactory analysis can not be made by local authorities. The enlargement of the laboratory work at Springfield and the establishment of branch laboratories will allow this phase of the work to be performed.

Cooperation between the State health authorities and those of Chicago and other cities that are looking after the purity of their milk supplies should be furthered. The first essential is to know what the various cities of the State are doing, and this information should be collected by the State board of health. It will then be possible to see in what way the State board will be able to aid the various cities. The arrangement made with the Chicago department of health by which it furnished to the State board of health lists of those dairies which were not allowed to ship milk to Chicago is an example of what may be done. By it the necessity of reinspection of dairies passed by the Chicago inspectors was obviated and attention could be concentrated on those establishments that were in bad

condition, so as to prevent their milk, refused by Chicago, from going to other smaller cities.

In order to determine where the State board of health may best aid, the laboratory examinations of milk made by the various cities and results of local dairy inspections should be reported regularly to the State board of health. The State food commissioner should likewise report his results of laboratory analyses of milk.

Besides the State board of health, two other State agencies exert a certain amount of influence on the quality of milk produced in Illinois, namely, the State food commissioner and the State board of live stock commissioners. The former is appointed to make inspections and analysis of the manufacture of milk products, but he makes no dairy or milk inspection. The Illinois Food Standard Commission establishes the standard for milk, which is defined as "lacteal secretion of healthy cows containing not less than 8½ per cent of solid not fat and not less than 3 per cent of milk fat." Ice cream is defined as containing not more than 0.8 per cent gelatine or harmless vegetable gum and not more than 5,000,000 bacteria per cubic centimeter, according to the 1912 report, but in the 1913 report the bacterial limit is not mentioned. While this commission examines a great variety of milk products it makes no report of the chemical or the bacteriological analysis of milk. The State board of live stock commissioners, acting through the State veterinarian and his corps of asssitant veterinarians, makes inspections of the animals of dairies when requested either by interested parties or by local authorities.

It is thus seen that problems of the milk industry are being approached under State authority from three different angles. The most important of these is undoubtedly the relation of milk to the public health, and its sanitary control should devolve on the State board of health. At the same time the State board should have authority to call on the State food commissioner for such information as it may desire from time to time relating to dairy products, and should also have authority to call upon the State board of live stock commissioners for such aid as may be necessary in connection with dairy inspections.

Two phases of the milk question in Illinois have been subjects of prolonged discussion, namely, tuberculin testing of cattle and the universal pasteurization of milk. An important net result of this discussion has been the enactment of a law in 1911 prohibiting any municipality from requiring the tuberculin testing of milk cattle as a condition to receiving the milk for sale. A proclamation of the governor issued in January, 1913, however, provides that all cattle brought into the State for dairy or breeding purposes shall be accompanied by a certificate showing that they are in a healthy condition.

In view of the above facts the only alternate means remaining to protect the milk supplies against the transmission of tuberculosis is pasteurization, which, when properly applied, is of course effective, not only against this disease, but other diseases of a communicable nature. Further discussions of these important questions are not here presented, although it is necessary to state that the provision against tuberculin testing is ill advised and removes one important means by which citizens of the State may protect themselves.

Occupational diseases.—The occupational disease act, which has been in effect since July 1, 1911, provides that every employer in the State engaged in any process of manufacture in which various specified forms of lead or arsenic are used or in the manufacture of brass or the melting of lead or zinc, must cause the employees engaged in this work to be examined once every calendar month by a competent physician in order to ascertain if they present symptoms of any disease due or incident to the character of the work in which they are engaged. Physicians making these examinations must report at once to the State board of health upon blanks furnished by it, stating the number of persons examined and either that no such disease was found or if cases are discovered, giving detailed information regarding them. The blanks issued by the State board of health call for data under 23 heads, the last being an enumeration of 40 symptoms that may be encountered, with directions for the physician to check off those found in each case.

The State board of health has no authority to take any corrective action under the occupational diseases act. It simply receives the reports and files them after transmitting copies to the Illinois Department of Factory Inspection. No confirmation is made of the accuracy of these reports. This should undoubtedly be done, and the thoroughness of the efforts of the examining physicians to detect cases of the occupational diseases specified should be supervised. Furthermore, other diseases which are preventable and which reduce the efficiency and well-being of employees should be taken account of by the chief State health agency in places of employment. In other words, this agency should be required, not only to collect reports of sickness, including occupational diseases, but to satisfy itself of their accuracy.

It is to be regretted that the control of all classes of preventable diseases does not devolve on the State health agency. At present there is a division of responsibility which should not exist. The State board of health will now take no action within a factory, and the factory inspector takes no action in respect to disease prevention unless the disease is one of those specified in the law. A disease not so specified, such as tuberculosis, occurring in a factory, thus fails to receive attention from either State agency. Diseases

among workingmen, whether or not occupational, are generally influenced by conditions outside the factory as well as within it, and their control, as stated, is a particular function of the health authorities.

Inasmuch, however, as there is now division of authority, it would appear practical to coordinate the work of the departments by allowing the State health authorities to have the entire responsibility of detecting the presence and extent of occupational disease, and to furnish this information promptly to the State department of factory inspection. This latter department would then be relieved of the expense of a separate medical staff, and the State health authorities would simply take up activities clearly within their province under the general provisions of the law but heretofore not exercised. These activities might include either supervision of the examinations made by private physicians or examinations by the health department itself.

In any event, much may be done by education of both employers and employees. Some work of this character has been done by the department of factory inspection. It should be extended by means of popular publications and demonstrations.

Publicity.—In addition to the circulars mentioned and reprints of the law, a monthly bulletin was issued by the Illinois State Board of Health until the close of 1912. This was primarily for physicians.

It is now planned to revive this bulletin in a short, attractive, and more popular form. As the present secretary had charge of the bulletin of the Chicago health department, this new publication should do all that is expected of it. A mechanical exhibit has been shown at the Illinois State Fair, the Springfield survey exhibit, and several other places.

A division of publicity and education with an experienced man in charge is needed. Publicity is the best and often the only means of advancing certain phases of public-health work and occupies an important division in well-organized health departments.

Emergency work.—In the exercise of its powers to protect life and health, the Illinois board of health is required from time to time to meet emergencies, some of which may be mentioned:

During the floods of 1913 the assistant secretary and chief inspector of the State board of health made the trip with the State relief boat and worked with the local authorities and the State water survey to improve sanitary conditions and to guard against the outbreak of disease. Besides the organization of emergency corps, smallpox and typhoid vaccine, antitoxin, and disinfectants were distributed.

In July, 1914, after bubonic plague had been reported in New Orleans, three inspectors were sent to river ports and railroad terminals of roads from the South. The towns were urged to clean up and catch rats, but no laboratory examinations were made nor were

any reports received as to how far the recommendations were carried out by the authorities of the places visited.

During the summer of 1914 inspections were made of summer resorts and bathing beaches and reports filed on blanks prepared for that purpose. Many conditions were corrected at the time. It is planned to check up the rest with a reinspection next summer.

An investigation of pellagra in the Peoria State Hospital was made in 1909.

Supervision of hotels.—An act approved June 25, 1913, gave the State board of health supervision over hotels in the State of Illinois in certain respects. In brief, the law is as follows:

A hotel is defined as any building of 10 or more rooms used for the accommodation of transient guests for which pay is received.

There must be a sufficient supply of clean bedding and clean sheets, which must be at least 81 inches wide and 99 inches long. Clean sheets must be provided as often as the bed is used by different persons.

Individual clean towels must be laid in sight and in easy access to guests in public wash rooms, and there must be at least two clean towels in each room each day.

Any room in any hotel where a communicable disease has occurred must be thoroughly fumigated and bedding disinfected before it is again occupied and at least 48 hours must intervene. The plumbing of hotels must be in accordance with the sanitary rules to be established by the State board of health, and all plumbing must be kept in a sanitary condition and proper toilet facilities must be provided for the separate use of males and females.

Failure to conform to the provisions of this act is made a misdemeanor and the fine is fixed from $10 to $100 or from 10 days to three months in the county jail, or both, and every day of violation is made a separate offense.

The State board of health is directed to have copies of this act printed and to forward to each hotel a sufficient number of copies. One copy of the law must be posted in every room.

The State board of health has printed and distributed a large number of copies of the act, but no special sanitary rules for hotels have been established, and it is safe to say that the law is without effect. Even the easiest provision of the law, that is the posting of a copy of the law in every room, has been generally disregarded, inquiry having revealed but one hotel in which copies were so displayed.

Common drinking cup.—A law approved June 5, 1911, (L. 194, p. 289) prohibited the use of common drinking cups in schools, hotels, theaters, factories, public buildings, railroad trains, and other public places.

Full-time field officers needed.—The present system of part time sanitary inspectors on a per diem basis is unsatisfactory. It makes use necessarily of physicians who are engaged in private practice and whose first duty is to their patients. However conscientiously the inspector may work, the service rendered is expensive. At present an inspector is simply an agent of the secretary, sent out to make a diagnosis or to give advice. He is responsible neither for the general health of any prescribed locality nor for the carrying out of measures advised by him in particular places. His traveling expenses are necessarily high, as distances are considerable and much of his time is spent in going from one place to another. The trips are frequently long, with many waits at junctions, and, as each trip is an emergency caused by the presence and threatened spread of an epidemic disease, the inspector must necessarily do his work hastily in order to get to the next place.

The present plan should be abolished and the system of district health officers should be substituted. The State should be divided into at least eight districts, and for each there should be appointed a State health officer who is not allowed to have any other calling or pursuit from which he receives remuneration. A division of the State into even smaller districts, with the appointment of a health officer in each district, could be well afforded by the State of Illinois, but eight is given as a minimum. This system could be installed with but very little expense over the present one, and should give much better results.

The district health officers should preferably not be residents of their districts when appointed, in order that they may be entirely free from local influences. They should be qualified by training and experience in sanitary matters. Each officer should be centrally located in his district, should remain in it, except when on duly authorized vacation, and should be responsible to the State for the health conditions within his territory. It should be understood, however, that the secretary of the State board of health would have the authority to utilize any one of those officers outside of the district in which he belongs, in order that the district health officers may constitute a mobile force to be used in times of emergency.

It would be the duty of the district health officer to cooperate with the local health officers in making a sanitary survey of the territory for which he was responsible and in continuing such surveys as often as needed. He would also assist the local health departments in the prevention of disease and would arouse them to correct insanitary conditions. He would take steps to promote the efficient registration of births, deaths, and notifiable diseases, as well as for the advancement of rural sanitation, child hygiene, and other important matters. He would inspect from time to time institutions,

schools, public conveyances, and labor camps within his district, and would study and assist in the prevention of excessive morbidity or mortality from any disease. He should endeavor to enlist the cooperation of physicians and welfare organizations within his district in the improvement of public health.

He should also endeavor to influence the counties and cities, where necessary, to erect and maintain hospitals for tuberculosis and other communicable diseases and to pay for local community nurses, whose work he would supervise. He would, in fact, be the eyes and hands of the State board of health in sanitary matters in his district.

The pay of these district health officers should be fixed by the State board of health at not less than $1,800 a year and reasonable traveling expenses. They should be appointed for merit only and should be allowed increased compensation for efficient work. Economies already suggested would cover the entire expense of the eight district health officers recommended.

Until the changes recommended can be made, the present medical inspectors should be required to inspect all branches of public-health work in whatever place they may be and so far as they are able, instead of occupying themselves solely with one single disease or condition. To this end and to standardize their work, blanks should be prepared covering various subjects, such as local health organization, epidemic conditions, antitoxin, and vaccines. Inspectors should carry copies of these blanks and should make reports on them whenever the opportunity exists, regardless of the specific object of their errand.

Sanitary engineer needed.—Epidemics of typhoid fever are now being investigated by the State water survey at the request of the State board of health. In order to be prepared to meet emergencies, a sanitary engineer with at least one assistant is needed. This will be discussed more fully when the State water survey is considered, but it may be stated here that no duplication of function will be caused by this addition.

Division of communicable diseases needed.—The present sanitary division of the State board of health, embracing at present practically all of the public health work of the State, is without the supervision of an epidemiologist or of a physician, except such attention as the secretary may have time to give it. For many months before the appointment of the present secretary there was no graduate of medicine in the board of health office except the registrar of vital statistics.

The control of communicable diseases is most important and should be cared for in a well-organized division. It should have at its head a skilled and experienced epidemiologist. The head of a health department, however competent he may be, can not keep in the lead

in this specialty and be expected to handle all necessary details and meet emergencies any more than he could do advanced work in bacteriology, for example, and conduct his proper work, which is that of administration, based on a general knowledge of public health work. It should also be planned as soon as possible to divide the sanitary work into two divisions, namely, a division of communicable diseases and a division of sanitation. The appointment of an experienced epidemiologist is possibly the most pressing need of the State board of health at present, and it would be well when he is appointed to designate him chief of the division of communicable diseases and assistant secretary of the State board of health.

The duties, responsibilities, and authority of the epidemiologist when appointed should be clearly defined. He should, of course, be thoroughly competent and appointed entirely for the services he can render and without regard to his politics or to whether or not he is a citizen of Illinois. He should not engage in any other remunerative employment and should be well paid. The present State laboratory, with its extensions and the branch laboratories contemplated, should be under his jurisdiction, as should the district health officers.

When the separation into a division of communicable diseases and a division of sanitation is made the sanitary engineer with his staff and the dairy inspection work would go to the latter division.

Reports of communicable diseases should be used as a basis for the control of these diseases, and for this purpose must be collected from all available sources, be recent, and be as complete as possible. It is recommended that an open file by counties be established into which daily reports of deaths registered, of specimens examined in the laboratory, and information from other sources may be placed, and that action be taken upon this information without waiting for complaints or for appeals, as is now done. This is but one detail to be instituted by the epidemiologist when appointed.

Legislation should be enacted to require that certain communicable diseases be reported promptly. This should follow as closely as possible the model law adopted by the Conference of State and Territorial Health Authorities with the United States Public Health Service.

For the most part the methods employed for records and for accounting are satisfactory, but a saving of time, with the development of more available records, may be brought about by minor adjustments, some of which may be mentioned:

The accumulation of letters and reports in baskets should be limited. Files should be standardized and those that require folding smaller than letter size should be eliminated.

All subjects closed should go to a central file except strictly routine reports.

Form letters or blanks for routine work, such as follow-up requests to get overdue reports, should be used in order to save the time of dictating and typing letters.

Punch machines should be used, especially in the tabulation of reports of communicable diseases, antitoxin, and other reports.

An addressing machine should be used for communications going to the same persons each month that are now being addressed by hand.

The secretary should personally sign letters except those of a routine nature, which should be signed by the head of the division, using his own name and title.

Laboratory.

There is an annual appropriation of $4,400 for laboratory maintenance in addition to the salary of $1,800 paid the bacteriologist and $840 paid his helper.

The laboratory occupies one room about 40 by 18 feet on the second floor of the northwest wing of the Capitol Building. It is sufficiently equipped for doing clinical bacteriology, but not for chemical analysis. As the room is long and narrow, with but one large window, both light and ventilation are poor. A rearrangement of the desks and equipment would facilitate the work, and this will be necessary if the work increases, and especially if the examination of water and milk is begun.

The laboratory was opened in 1904, and the present bacteriologist has been in charge since January, 1912. He is a full-time official.

All of the diagnoses are made by the bacteriologist, but many of the cultures and slides are made by a handy janitor, who also does a large part of the clerical work. As the bacteriologist is not always fully occupied, he is at times sent out on short trips to do field work, especially when it is a question of diagnosis of diphtheria and cultures are to be made. This is valuable assistance to the localities visited, but should be rendered by a regular sanitary inspector, preferably a district health officer, and the work of the laboratory should be increased to keep at least one bacteriologist fully occupied.

Examinations are made of sputum for tuberculosis, of swabs by the quick cultural method for diphtheria, of blood for typhoid agglutination, and since last July for the Wasserman reaction. For the year ended October 1, 1914, examinations were made as follows: 2,355 for tuberculosis, 813 for diphtheria, and 1,011 for typhoid fever. In addition 38 Wasserman reactions, 23 blood smears for malaria, 19 milk samples, and some miscellaneous analyses were made.

Containers for sending specimens to the laboratory are furnished by the laboratory and should be kept on hand by all the agents for the

distribution of antitoxin, but less than 200 agents actually have them. For diphtheria swabs a wooden skewer is used, the end of which is wrapped with cotton and sterilized in a cotton-plugged test tube. But one size mailing tube for swabs is furnished. It is a large one holding six tubes and requires 5 cents postage by parcel post and from 10 to 12 cents if sent first class. The containers are not addressed for return to the laboratory if sent to physicians, but the address on a sticker is inclosed. If sent to antitoxin agents, the mailing box has a return address. For sputum a small open-mouth bottle, containing a little 5 per cent carbolic acid solution and packed in a mailing box, is furnished. For the agglutination test for typhoid fever light aluminum plates are used, on which to return dried blood. For the Wasserman reaction the physicians must draw off 2 or 3 cubic centimeters of blood with a hypodermic syringe, put this in a small vial and mail it so that it will reach the laboratory within 24 hours. If more time may elapse he must send 1 cubic centimeter of serum.

A very complete record is kept of all containers sent out by means of two card records, indexed by counties and towns. A very large proportion of the containers goes to private or local laboratories and no record is obtained as to results, but as they doubtless serve a good purpose their use is to be encouraged. It would seem, however, that by cooperating with other laboratories in the State and by obtaining reports from local laboratories the record of diseases as diagnosed by laboratory methods could be much enlarged.

Specimens are delivered at the laboratory by post about 10 a. m. and swabs of suspected diphtheria cases are inoculated at once on serum agar slants and incubated. While this is going on the other specimens are examined. In the afternoon, after four to five hours' incubation, smears are made from the entire surface scraping of the serum agar slant and examined. Those showing ordinary or no bacteria are considered negative.

The data card received with the specimen is given both a serial and a laboratory number. The laboratory number goes on the specimen and follows through on every culture tube or slide. When the result is known it is entered on the bottom of the data card, a printed form report is made out and signed and the serial number entered on the physicians' card index with date, what examined for, and whether positive or negative. When a sufficient number of data cards accumulate they are classified as to diseases and bound in a book form.

A clinical laboratory should be valuable to the physician as an aid to the diagnoses of his cases and to the health authorities, both State and local, as an aid in promptly and accurately locating communicable diseases. From a public health standpoint it is the latter function that is important and that justifies making this service free to all. To be of the greatest value it is necessary that the laboratory

service should be well known to all physicians, that its use should be encouraged by having a simple technique for the taking of specimen, and by having all unnecessary work eliminated.

It is further highly desirable to have all clinical laboratories in the State report to the State laboratory in order to increase the amount of information available.

The laboratory of the State board of health in Springfield has developed entirely as a clinical aid to such physicians as care to use it, and even for this purpose its existence has been advertised but modestly. It is not used as much as it should be. Containers for specimens are on hand at less than 200 depots, although free antitoxin is available at 350.

There is no connection between the laboratory and the division of sanitation. Except in the case of some unusual outbreak, when a verbal notice is given as a matter of news, no report is made. The blanks sent out by the laboratory require so much clinical data as to be discouraging, especially as it is prominently printed on these blanks that the specimens will not be examined unless all spaces are completely filled out. As a matter of fact very few blanks are completely made out but returns are made nevertheless.

For instance the blank to be returned with the specimen of suspected typhoid has 33 spaces to be filled, 15 of which are for clinical information and will be of value only at some future date when deductions as to the proportionate occurrence of such symptoms as headache and epistaxis may be made.

Recommendations.—It would seem much better to omit or make optional all entirely clinical data, but insist on information useful in locating the source of infection. It is evident that if data covering the usual means of infection by typhoid, viz, liquids, food ingested, direct and indirect contact, are furnished, very valuable inferences may be drawn as to the origin of the disease, inferences that become almost positive proof if there are many similar cases.

Containers, now provided at some 200 of the antitoxin stations, should be kept at all of them and should be furnished all local health officers willing to cooperate. Each of these depots should be designated by being named an "Agency of the State board of health" and furnished a neat sign to that effect.

The containers and the blanks should be standardized. The present mailing box for swabs will hold six, although swabs are usually sent in singly. The other containers are good. All the mailing tubes should be addressed to the State board of health laboratory and should state on the label the amount of postage to be attached for both letter and parcel-post rates, thus saving the sender the trouble of weighing or the uncertainty of guessing at the amount necessary. In addition the tube or bottle inside should be labeled

"State Board of Health of Illinois." The blanks are all different now, both as to data requested and as to size and form. It would be possible to devise a card that would go in any mailing tube, that would differ in color according to disease, and would call for similar data in the same order. It would then be possible to file these cards directly into drawers in series of two for each disease, one drawer representing the positive cases, the other the negative ones. A cross index of specimens sent in, divided into counties, and indexed by the sending physician's name, as is now done, would be less work and make records more available than at present. Such data could easily be transferred to perforated cards for purely statistical reports.

A great many specimens are sent to local laboratories. An attempt should be made to have these laboratories report the results of examinations of specimens sent to them in State board containers, and especially report all positive specimens originating outside of the jurisdiction of the municipality in which the examination was made. It may even be possible to obtain similar information from private laboratories.

A daily report should be sent from the laboratory to the division of communicable diseases. This should be one of the valuable ways by which such created division would obtain information of the presence of certain communicable diseases and of the progress of epidemics. Such information, whether complete or not, should be furnished promptly, and as such would be more valuable than complete reports at a later date.

Not only should the number of specimens of diphtheria, tuberculosis, and typhoid examined be increased by directing the attention of physicians to the advantage offered and by having always at hand an easy and simple way of sending the specimen, but analyses should be made of specimens of other diseases, notably malaria and hookworm. Malaria is reported to be prevalent in the southern part of the State, and its actual or suspected presence undoubtedly causes many mistaken diagnoses. Examinations of water and milk should also be made at Springfield.

Both the dairy-inspection service and the sanitary engineering work contemplated will require laboratory work, which may be done at Springfield for the central part of the State. It will be difficult to accommodate all this in the present laboratory room, but some inexpensive changes will increase facilities. Plans for rearrangement of the laboratory were submitted by the writer. These included forced ventilation, improved lighting, and a rearrangement of apparatus and furniture.

Branch laboratories.—Illinois is over 300 miles in length and its territory is large. A laboratory to be of greatest service to the doctor must be within easy reach. Although Springfield is centrally

located, there are many points in the State where a specimen put in the mail can not reach the laboratory in less than 36 hours. Many physicians do not use the State laboratory, as they want a quicker action than it can give them. The laboratories, both public and private, of Chicago and other larger cities are used to a very great extent, and the State does not get much valuable information it should have, while many localities are without laboratory facilities. To give this service, seven branch laboratories should eventually be established, in charge of the seven district health officers recommended, outside of the Springfield district. This would fully cover the State for laboratory work and would allow any physician mailing a specimen in the afternoon to know the result in 24 hours.

These laboratories need not be elaborately equipped, but should have everything that is essential and be available as laboratory headquarters for any field force sent into the district on epidemic or survey work. If the number of sanitary districts should be increased in the future it would not be necessary to increase the number of laboratories. It is not practical to establish seven branch laboratories at present, but it is practical and necessary to open two at once, and this is recommended. One of these should be located in or near Chicago, the other in the southern part of the State. Each of these should be under the immediate charge of the district health officer in whose district it is located, who should be responsible for its development. In addition, it has been agreed to allow the bacteriological laboratory at the University of Illinois at Urbana to act as a branch of the State board of health. These branch laboratories should furnish daily reports to the central laboratory in Springfield.

Lodging-House Inspection Service.

An act for the regulation and inspection of lodging houses or other places of inhabitation (approved and in force Mar. 30, 1881, L. 1881, p. 155) prescribes that in cities of 50,000 or over plans of lodging houses and similar buildings must be submitted to the city commissioner of health for approval or rejection as to ventilation of rooms, light, and air shafts, windows, ventilation, and water-closet drainage and plumbing. The plumber is to receive a written certificate of instruction from the health commissioner before beginning work and is to notify him when the plumbing is completed, but not covered, in order that it may be inspected and approved. The plumber and architect are held responsible under the law. Under the act and appropriate ordinances the Chicago Health Department exercises a close supervision over all buildings constructed. It also administers all municipal lodging houses.

All private hotels, boarding houses, and lodging houses in Chicago are under the supervision of the department of lodging-house in-

spection of the State board of health, which was created by a law approved April 21, 1899.

The office of this department is located at 109 North Dearborn Street, Chicago. The personnel and their pay are as follows:

	Per annum.
Chief lodging-house inspector	$2,000
Five lodging-house inspectors, each	1,200
One stenographer	1,200

Requirements of the law.—The proprietor, keeper, or manager of a lodging house, boarding house, rooming house, hotel, etc., must file an affidavit with the county clerk before March 1 of each year, stating the number of guests then in his hotel, the greatest number who stopped there within 30 days preceding, the smallest number of persons within the same period, the length and breadth of the building, the total number of rooms, the number of sleeping rooms, the dimensions of the smallest and largest sleeping rooms, and the number of beds contained in the largest room. These affidavits may be made at the county clerk's office or at the office of the lodging-house inspector.

The landlord or his representatives must keep a register of all guests.

Each occupant must have 400 cubic feet of space and proper sanitary conditions.

Inspections are made regularly to enforce the provisions of the law and to discover those houses that have not been registered.

During the year 1914, 1,090 lodging houses, hotels, and boarding houses were measured and inspected, 183 were remeasured and reinspected, and 1,487 supplemental inspections were made. Three lodging houses were closed on account of insanitary conditions.

The law in question applies to but one city, viz, Chicago, as it is made operable only in cities over 100,000 inhabitants.

Chicago has a vast transient and floating population housed in several thousand lodging houses, all of which require sanitary supervision, but this supervision is a local function and should be performed by the city health department. At present there is a duplication of inspection, for while the State inspects for ventilation and general sanitation it takes no cognizance of the presence of disease, which the city inspector must look after. Furthermore, the requirements of the Chicago Sanitary Code (pars. 1378–1380) as to ventilation are more stringent than those of the State law. Until the situation can be changed by new legislation, the State should cooperate with the city by reporting immediately any cases of sickness or bad sanitary conditions found in lodging houses.

A large amount of time that could be used in correcting insanitary conditions is now used in obtaining affidavits. A former report states: "The number of inspections made are less during the first six months every year owing to the fact that the entire force at times is used to do office work in order to take care of the large number of persons appearing to make and file affidavits at this office." Inquiry has failed to show that any use whatever is made of these affidavits, and it is believed that they should be discontinued.

Local Health Administration.

As the State operates almost entirely through the local health authorities in the control of disease, an inquiry into their operations is necessary.

Local authorities.—There are four classes of local health authorities existing in the State, to wit:

(1) Boards of health of cities, towns, and villages incorporated under special acts of the legislature.
(2) Boards of health of cities, towns, and villages incorporated under the general law.
(3) Boards of health of townships in counties under township organization.
(4) Boards of health of counties not under township organization.

In the first class the charters creating the municipalities usually provide what shall constitute the board of health and how it shall be appointed. In cities, towns, and villages incorporated under general law the boards of health are appointed by the city council or town or village board (R. S., par. 76, sec. 62, ch. 24). In counties under township organization the supervisor, the assessor, and town clerk constitute the board of health of each township, while in those not under township organization the county commissioners constitute the board.

Theoretically the State is completely covered by local boards of health and there is always actually some official body to which communications on health matters may be addressed, but many of these bodies do not take any interest in health matters. County and township boards of health have the following powers (R. S., ch. 34, sec. 117):

(1) To do all acts and make all regulations which may be necessary or expedient for the promotion of health or the suppression of disease.
(2) To appoint physicians as health officers and prescribe their duties.
(3) To incur the expenses necessary for the performance of the duties and powers enjoined upon the board.
(4) To provide gratuitous vaccination and disinfection.
(5) To require reports of dangerously communicable diseases.

City councils and village trustees have the following public-health power (R. S., ch. 24, sec. 62):

(1) To declare what shall be a nuisance and to abate the same, and to impose fines upon parties who may create, continue, or suffer nuisances to exist.
(2) To appoint a board of health and prescribe its powers and duties.
(3) To do all acts and make all regulations which may be necessary or expedient for the promotion of health or the suppression of diseases.

Their jurisdiction for the purpose of enforcing health and quarantine ordinances and regulations extends one-half mile beyond the city or village limit (R. S., ch. 24, sec. 24).

The State board of health has published a model health ordinance which it advises cities to adopt. It relates to the following, viz:

(1) Board of health, organization, powers, duties.
(2) Foodstuffs, drugs, and medicines.
(3) Sanitation.
(4) Contagious diseases, including reports of cases, quarantine, disinfection, vaccination, and general precautions.
(5) Deaths and burials requiring a burial permit based on a death certificate.
(6) Nuisances.
(7, 8, 9) Penalties, repeal of conflicting ordinances, and when enforced.

Rules and regulations are also recommended for township boards of health which provide for the appointment of a health officer, reports of communicable diseases, placarding, quarantine, vaccination, disinfection, death certificates, and burial permits.

It is not known to what extent the advice given has been accepted by the local governing bodies, and no record has been made showing how many have adopted these or similar ordinances or rules.

Nuisances.—The control of nuisances is left in the hands of the local authorities and no attempt is made to abate them as it is believed that the State board of health has no jurisdiction. Complaints are always referred to the local health or other office.

Aside from public nuisances that may be so delcared by city councils and village trustees, the Criminal Code (sec. 221, ch. 38), mentions 9, 3 of which relate to the collection to the prejudice of others of the carcasses of any dead animal, offal, filth, or any noisome substance and to the throwing the same into any body of water, sewer, street, bridge, or public highway, or to acts that would render any water unwholesome or impure.

It is stated that as all prosecutions on account of nuisances must go before a jury, convictions are difficult to obtain.

Local conditions.—Limited investigations of the local administration have been made. Dr. George Thomas Palmer, formerly assistant secretary of the State board of health and afterward health officer of Springfield, published [1] some interesting facts collected on conditions existing four years ago in 44 Illinois cities of 3,000 or over, not including Chicago. His statements may be summarized as follows:

(1) Every municipal health officer should be a physician; but of the 44 cities only 6 had medical commissioners, directly responsible and 15 had boards of health without medical officers.

(2) It is useless to expect that the unpaid or ridiculously underpaid health officer will neglect his real means of livelihood to render public service; but not one city paid enough to warrant a competent man in devoting all of his time to the health department. One city of 59,000 paid $1,500 per year which was the maximum, outside of Chicago. Twelve cities paid nothing and while the average population of the 44 cities was 16,500, the average salary paid to health officers was $200.

[1] The American City, August, 1911.

(3) The city health department should have appropriations to prevent disease, and for constructive health work; but 21 of the 44 cities had no appropriation except for the nominal salaries of officials.

(4) The health department should be out of politics and a competent man continue in office; but in only 7 cities were the health officers permitted to serve sufficiently long to become conversant with the sanitary requirements of the city.

(5) The health officer should have assistants or inspectors; but of these cities 29 had none.

(6) The health department should register death statistics and issue burial permits, but this was not done in 31 of these cities, it usually being left to the city clerk.

(7) Milk is an important food, but may carry disease, especially to infants, and so should be supervised by the health department; but of the 44 cities 29 made no pretense of so doing.

(8) Provision should be made for the isolation of contagious diseases; but of the 44 cities only 9 had any isolation hospital, and in but 2 were there regularly employed hospital attendants.[1]

Similar data representing conditions as they existed at the close of 1914 have been gathered by the State board of health. Information was requested of approximately 1,000 cities, towns, and villages in the State of which 614 replied. No specific appropriation for health purposes were reported by 425. Of the 189 remaining 106 have paid health officers.

With the exception of Chicago and of the cities of La Salle, Oglesby, and Peru, which have joined forces, there are so far as reported no full time local health officers in the State. Of the 106 cities with paid health officers, 8 are paid by the day of active service, and the remaining 98 have health officers paid salaries from $10,000 (Chicago) to $5 per annum.

It is believed that efficiency in local health administration can not be expected until full-time health officers are employed. The example of neighboring cities combining under one health officer who devotes his entire time to the work, may well be followed in other instances than the one mentioned. A city could also advantageously combine with its county for this purpose.

Division of Medical Registration.

The personnel which has to do with the enforcement of the laws relating to medical registration and their compensations are as follows:

	Per annum.
1 chief clerk	$2,400
1 stenographer	1,200
1 clerk	1,500
1 embalmers' clerk	1,080
1 stenographer	900
1 messenger	900

[1] The American City, August, 1911, p. 64.

The secretary and members of the board make inspections of medical schools or may delegate this duty to others. Temporary assistance is employed as needed.

Illinois has long been active in the regulation of medical practice and for that purpose several laws have been enacted. The act of 1817, passed when Illinois was still a Territory, provided for the incorporation of medical societies. An act dated March 24, 1819, passed less than four months after its admission as a State, divided it into four parts, the practicing physicians of each part to constitute a medical society, which societies were "declared bodies corporate and politic in fact and name" with authority to examine those desiring to practice medicine and to issue licenses for that purpose. This was superseded by an act approved January 15, 1825, which divided the State into five districts, the physicians of each district to elect one censor, the five censors so elected to form a board for the purpose of examining physicians and granting licenses to practice.

Under the act of 1877 creating the board of health, that body was given the power to license practitioners of medicine and surgery. The medical practice acts were revised 1899 and have since been amended several times. The law in force at present provides in effect as follows:

The State board of health is the supreme power for licensing physicians.

No one may practice medicine or midwifery without a license.

To obtain a license to practice medicine an application must be made in writing together with proof that the applicant is of good moral character, a graduate of a medical college in good standing, as determined by the board, and must pass an examination in those general subjects and topics, "the knowledge of which is commonly and generally required from candidates for the degree of doctor of medicine by reputable medical colleges in the United States."

Those desiring to practice by any other system or science who do not use medicine internally or externally are to be given an examination of a character sufficiently strict to test their qualifications.

Graduates of legally chartered medical colleges in Illinois in good standing as determined by the board may be granted certificates without examination.

A student who has completed the course of instruction but has not received his diploma may be admitted to examination in the discretion of the board, and the board may issue to him, provided he passes the examination, a temporary permit effective for a period not exceeding 18 months, which will be exchanged for a regular license upon presentation of a diploma from a medical college.

The State board of health may establish a standard of preliminary education deemed requisite to admission to a medical college in good standing. For this purpose examinations conducted by the faculty or officers of a medical college are not allowed, but the diploma of an approved high school, or equivalent school carrying a four years' attendance, or a certificate to the effect that a satisfactory examination has been passed before the State superintendent of public instruction or like officer, in studies such as are embraced in a high school course, is considered satisfactory.

The board has authority to determine the standing of literary or other colleges and schools, in order that their diplomas or certificates may be accepted as evidence of preliminary education.

Those who successfully pass the examination of the board or who present a diploma from a medical college in Illinois in good standing will be issued a license to practice medicine, midwifery, or other system of treating human ailments, but those who are authorized to practice other systems can not use medicines, externally or internally, or perform surgical operations, and only those who are authorized to practice medicine and surgery may call themselves physicians or doctors.

Those authorized to practice midwifery are not allowed to use any drug or medicine or to attend other cases than those of labor.

Certificates are signed by all the members of the board and are certified to by the secretary.

Licenses may be issued at the discretion of the State board of health to graduates of a medical college in good standing who have already been licensed by any country, State, or Territory in which the requirements of medical registration are deemed by the State board of health to have been equivalent to the requirements in force in Illinois and where a like privilege is accorded to physicians who hold licenses issued by the Illinois State Board of Health, and a license may be issued without further examination to anyone who has successfully passed an examination before the United States Army, the United States Navy, or the United States Public Health Service for a medical commission.

Members of the board receive a compensation of $10 per day actually spent in business pertaining to medical registration and a further sum to be paid for each examination paper rated.

Certificates to practice medicine must be recorded in the office of the clerk of the county where the practitioner resides or practices within three months, and the date when recorded shall be indorsed thereon.

Examination for license to practice midwifery shall be of such a character as to determine the qualification of the applicant to practice that calling. The examination of those who desire to practice any other system of treating human ailments without the use of medicine internally or externally and who do not practice operative surgery, shall be of a character sufficiently strict to test their qualifications as practitioners.

The fees for examinations in medicine and surgery are $10 for the examination and $5 for the certificate. For "other practitioners" the fees are the same. For the examination in midwifery the fee is $5 and for the certificate $3.

Licenses may be withheld or revoked for unprofessional or dishonorable conduct, but only after the applicant has been given a hearing before the board. The action of the board is subject to judicial review, and the courts have decided that licenses issued prior to the date of the present law (1899) can not be revoked.

The penalty for practicing medicine without a license is a fine of $100 for the first offense and $400 for each subsequent offense.

The regulations of the board also prescribe the length, number, and character of the courses of lectures and other instruction to be given students before graduation, if the colleges are to be classed as in good standing. Provision is also made increasing the amount of work required before graduation, first on January 1, 1915, and again on July 1, 1918.

Examinations.—The examinations are held at least four times a year and every precaution is taken to avoid irregularities.

The examinations are conducted by the secretary, assisted by the chief clerk and as many monitors as may be necessary. There is

usually one monitor for every 15 or 20 candidates. These monitors are in attendance for the purpose of seeing that all candidates comply with the rules and regulations. They are not medical men and know nothing of the questions. The secretary does not prepare questions or rate answers. The members of the board, by whom questions are prepared and answers rated, do not attend the examinations.

No person is admitted to the examination unless he has complied with the requirements of the board and presents a card of admission. The candidate sits at the table assigned to him throughout the entire examination. There is but one candidate to a table, and he must display in plain sight a photograph of himself certified in accordance with the rules of the State board of health.

Candidates are known in the examination by number only. This number, which is written on the examination papers, is erased before the papers are sent to the examiners, and another, a serial number substituted. By this method when the examiner has a paper before him he is without information as to the identity of the candidate, and neither the examiner nor the candidate can identify the papers belonging to any one person.

Recent graduates must receive a general average of 75 per cent before a certificate is issued. A credit is given in the rating to older graduates, amounting to 1 per cent for each year of reputable practice since graduation, up to a total of 30 per cent. Thus a physician who has been in reputable practice for 20 years, needs a general rating of only 55 per cent. This is done to prevent doing injustice to the old, experienced practitioner.

During the year 1913, seven examinations were held for physicians, which were taken by 718, of whom 569 passed, which is a slight increase over former years.

The provision of the law which gives the State board of health authority to grant licenses, without examination, to graduates of legally chartered medical schools in Illinois has not been used.

During the year 1913, four examinations for licenses to practice midwifery were held, all in Chicago. These were taken by 223 candidates of whom 100 passed, a slight increase over the number for previous year. Six examinations were also held for "other practitioners." They were examined on six subjects At these examinations 264 candidates were examined, of whom 117 passed.

For the enforcement of the medical practice act the State board retains a lawyer in Chicago and employs a law clerk. They are paid $2,500 and $900, respectively. During the year 1913, 97 cases were prosecuted in Chicago and 16 in the State outside of that city.

Itinerant vendors.—Section 8 of the medical practice act requires that any itinerant vendor of drugs, nostrums, ointments, or appliance

of any kind, intended for the treatment of disease or injury, who shall profess to cure or treat disease or deformity, shall pay a license fee of $100 per month. This license is to be issued by the State board of health which may, for sufficient cause, refuse to grant the same.

No licenses were issued under this law, and prosecutions were begun by the board to stop these vendors, but the law was decided to be unconstitutional by the supreme court in 1910.

Hundreds, if not thousands, of these vendors are said to canvass the State without regulation as to their methods or their wares. As an illustration of the danger from these peddlers, aside from the physical detriment and financial loss caused by unrestricted drugging, the following instance is reported by the State board of health. In September, 1914, a number of cases of smallpox appeared in McHenry County and investigation traced the epidemic to five cases that occurred in different houses, each visited by an itinerant patent medicine seller who had a profuse smallpox eruption and used it for advertising purposes, explaining that it was caused by the impurities of the blood that were being driven to the surface by the blood purifier which he offered for sale. A new law should be enacted to allow close supervision over this trade.

Embalmers.—An act approved May 5, 1905, provided for the regulation of embalming and disposing of dead bodies and for the examination, registration, and licensing of embalmers by the State board of health. This law provides that embalming may be done only by those so licensed, and that licenses will be granted only after examination. Examinations must be held at least twice a year by the State board of health and for this purpose the board has appointed a committee of embalmers.

The applicant must be at least 21 years of age, must give evidence of good moral character, and pay a license fee of $5. Licenses are issued for one year, but may be renewed upon payment of $1 renewal fee.

During the year 1913 three examinations were held at which 289 applicants were examined and 215 passed. In all, 228 certificates were issued in 1913 and 2,934 licenses are now in force.

Transportation of the dead.—Based on the board of health act (1877) and the embalmers' act (1905), new regulations concerning the transportation of the dead from points in Illinois have recently been adopted. These require transit permits and transit labels made out in duplicate. The original copy of the transit permit is carried by the passenger accompanying the corpse, who must have two first-class tickets, one for himself and one for the body. The duplicates of both the transit permit and transit label are to be forwarded by the baggage department of the original line to the secretary of the State board of

health. The original transit label and the undertaker's certificate are to be attached to the outside case. Coffins must be properly sealed and inclosed and bodies dead of certain contagious diseases must be embalmed in a specified manner. Certain exceptions to these rules are made, especially in and near Chicago.

Other examining boards.—There are four other boards in the State of Illinois not connected with the State board of health that have a licensing function and should be mentioned, as they are included in the recommendations of the efficiency and economy committee. They are the State board of pharmacy, the State board of dental examiners, the State board of nurse examiners, and the State barbers examining board.

The State Board of Pharmacy.

This board consists of five members appointed by the governor, with the advice of the senate, for a term of five years. The members so appointed must be competent registered pharmacists living in the State and shall have had 10 years practical experience. The term of one member expires each year, and the vacancy is filled from a list of at least three persons named by the Illinois Pharmaceutical Association. The board elects a president and also a secretary from among its own members.

The members receive no salary, but are paid a per diem of $8 for each day actually engaged in the duties of the board. They are also entitled to traveling and other expenses. The secretary receives a salary of $3,000 per year.

During the calendar year 1914, 8 examinations were held, at which 655 applicants for registered pharmacists and 442 applicants for assistant pharmacists were examined.

All registered and assistant pharmacists are required to renew their licenses annually. Apprentices are appointed without examination and renewals are not required.

This board is also charged with the enforcement of laws for the control of the sale of poisons and to prevent the adulteration of drugs, and for this purpose keeps one inspector in the field. During 1914, 63 offenders outside of Chicago were prosecuted and fines aggregating $2,530 levied. About 70 cases have been prosecuted in Chicago.

The enforcement of the law restricting the sale of cocaine and its derivatives is a duty of this board, but no action is being taken except that information is furnished the Chicago police.

The board of pharmacy has recently asked for $5,000 per annum for the enforcement of the law and for the enactment of the model antinarcotic law, as at present there is no restriction by the State on any habit-forming drugs except cocaine.

Board of Dental Examiners.

This board, created by an act of 1881, consists of five members, all legally licensed dentists, appointed by the governor for a term of five years. The board must hold at least one meeting annually and choose from among its members a president and a secretary. Each member receives a per diem of $10 for each day he is employed in the duties of the board. The secretary receives a salary of $1,200 per annum.

The duties of the board are to establish a uniform and reasonable standard of educational requirements for dental schools that are to be considered in good standing, and to grant licenses to practice dentistry to those who have graduated from such dental colleges who are of good moral character and who have passed an examination in writing before the board. Licenses given must be registered with the county clerk of the county in which the holder desires to practice, and a certificate of registration, for which a fee is exacted, must be secured annually from the secretary of the board. The board may refuse to issue a license or may after due notice and hearing revoke a license for dishonorable or unprofessional conduct.

State Board of Nurse Examiners.

An act approved May 2, 1907, provided for the voluntary registration of nurses and established the Illinois State Board of Examiners of Registered Nurses. An act approved June 30, 1913, repealed this former act and created a board of five registered nurses, known as the Illinois State Board of Nurse Examiners, appointed by the governor by and with the consent of the Senate. It is prescribed that they be residents of the State of Illinois actively engaged in the nursing of the sick, shall have been graduated for at least five years, and shall have served for two years in a general hospital. Three members of the board must have had at least three years' experience in educational work among nurses. The members receive $10 per day and traveling expenses when actually employed. They select from among their members a president, secretary, and treasurer. The secretary receives a salary, fixed by the board, of $1,400 per annum.

The duties of the board are to adopt rules, to outline and establish courses of training, and to inspect accredited schools. Examinations are held at least twice a year, at which all applicants for registration who present themselves with proper credentials must be examined. Certificates are granted those who pass, and they may style themselves "registered nurses" and sign R. N. after their names. Nurses registered under the act of 1907 and those registered in four other States, having similar requirements, may be granted certificates without examination.

State Barbers Examining Board.

This board was established in 1909 and consists of three practical barbers appointed by the governor. Each member receives a salary of $1,200 per annum and traveling expenses. In order to follow his calling in the State of Illinois each barber must obtain a license granted after a practical examination given by the barbers examining board, and must renew it every year. The board is authorized to adopt rules for the sanitary regulation of barber shops, subject to the approval of the State board of health, and is authorized to inspect barber shops and to enforce sanitation. Any shop suspected of being infected with a communicable disease or being in an insanitary condition may be closed or quarantined, but this provision must be enforced by the local health officer.

According to a statement of a member of the board, the examinations are to test the manual dexterity of the applicant; no knowledge of hygiene is required, and no attempt is now being made to enforce the inspection and sanitation of barber shops.

Discussion.—In 10 States the State board of health is the authority for the enforcement of the medical practice acts, and in another State the examining board is appointed by the State board of health. The State board exercises this function in regard to midwives in only three States, although in the majority of them a license is required. In many of the States the practice of embalming is controlled by the State board of health, and in others a special embalmers' board is affiliated with it.

In Illinois, as previously stated, enforcement of the medical practice law was imposed on the State board of health as one of its important functions by the act of 1877, which created that board. Since that time the licensing work has developed and absorbed the greater part of the activities of the board and its staff to the neglect of the more truly health functions. In the meantime also other independent functions and examining boards have been created.

The work of licensing physicians, midwives, and other practitioners, as well as embalmers, is carefully done. The medical schools, not only in Illinois but in many other States, are scrutinized and the preliminary education of all students desiring to study medicine in Illinois or to practice there later is investigated. This is necessary work, but the conviction remains that the regulation of medical practice is not a health function strictly speaking. Believing that all health activities should be grouped together, it is regarded as almost as important that activities not strictly in this class should be separated, so that they may not distract the energies of the health authorities. They should, at least, be segregated entirely from the strictly health functions and have no connection with them except through the head of the department. It may be inexpedient at

this time to separate this work from the State board of health, but in that case it should be handled through a properly designated division and should not be allowed to encroach on the regular work of the other division or to occupy any more of the time of the secretary than is required for necessary supervision. The time of the secretary should be occupied with administrative and constructive work, little if any of which is required in the administration of the medical practice act.

The examination of members of other professions and trades, such as registered nurses, pharmacists, dentists, and barbers, has less relation to the protection of the public health than the examination of medical practitioners. It is seen, however, that the conduct of these examinations is scattered among several agencies. In the interest of economy it might be wise to combine one or more of them under the agency enforcing the medical practice act, provided this agency is so segregated in the department of health as not to interfere with the logical and necessary development of public health activities. Any combination to be effective should be based on related functions, and not simply consist of transfer of existing boards. To place several distinct boards appointed by the governor in a single division would effect no economy and invite misunderstandings as to authority.

Of the other examinations mentioned, viz, for registered nurses, pharmacists, dentists, and barbers, the last, as now conducted at least, should not be placed under the State board of health. From a medical or sanitary standpoint there is no reason to examine barbers or other artisans coming in close personal contact with their patrons, unless this examination is physical or is to insure a knowledge of hygiene and asepsis. The present barbers' examinations are to test proficiency in their trade, and so need not be considered here. The sanitary control of barber shops is properly a function of the local health departments.

The examination of nurses to confer the title of "Registered nurse" can hardly be justified as a function apart from medical practice. Scientific nursing is one of the great modern aids not only in the care of the sick but in preventive medicine, but is dependent upon the medical profession. There can be no reason either of economy or of expediency in separating the registration of nurses from the department acting in the same official capacity for physicians.

The board of pharmacy has two functions apart from that of granting licenses, which it is necessary to consider in view of the possible rearrangement of its duties, viz, inspection of drugs and supervision of the sale of cocaine.

The prevention of adulteration of drugs and the enforcement of the proper labeling of poisons, is closely related to food inspection. The inspectors of the State food commissioner must cover the territory where drug stores are located and the inspection of these to insure proper labeling of drugs and poisons and to take samples, would not add greatly to their labors. The laboratories of the food commissioner are equipped to make analyses of drugs and to test their purity while his legal department is organized to make prosecutions.

On the other hand, the regulation of the sale of habit-forming drugs is in no way related to the examination of drugs for purity and for proper labels, and would probably be done best by the board having the licensing of those who sell or prescribe such drugs. A board with authority to suspend or revoke licenses would be able to stop this abuse where prosecution in the courts and the imposition of fines would have little effect. If wholesale dealers selling habit-forming drugs were also required to obtain licenses subject to revocation for nonconformity to the law, it would be possible to control what is now a serious situation.

Since the enactment of a Federal law (Act Dec., 1914), which requires the registration of all persons selling or prescribing habit-forming drugs, the control by the State becomes simpler, as the offenders will be more easily detected.

State Food Commissioner.

The State food commissioner is appointed by the governor. He must be a citizen of the State of Illinois. He receives a salary of $3,600 a year and holds office for four years or until his successor is appointed. He appoints with the advice and consent of the governor the following staff:

1 assistant commissioner, $3,000.
1 State analyst, $2,500.
1 attorney, $1,800.
1 chief clerk, $1,800.
1 assistant clerk, $1,200.
3 stenographers, at $1,000, $3,000.
12 inspectors, at $1,200 to $1,800 each, according to length of service.

The commissioner may also appoint:

1 bacteriologist, $1,800.
7 analytical chemists, $1,200 to $1,800 each.
1 janitor, $720.

Appropriation for six stock-food inspectors was made in 1913.

The offices and analytical laboratories are located on the top floor of the office building at 431 South Dearborn Street, Chicago.

The State food commissioner is charged with the enforcement of four laws known as the Illinois dairy and food law, approved May 14, 1907, the sanitary food law, approved June 5, 1911, the oleomargarine law, approved June 14, 1897, and the stock food law, approved May 18, 1905.

A food standard commission is provided, appointed by the governor, which adopts standards of quality, purity or strength for food products. This commission consists of the commissioner or his representative, a representative of the Illinois food manufacturing industries, and "an expert food chemist of known reputation."

This commission establishes and publishes definitions and analytical requirements as to the strength and purity of foods when these standards are not specified in the law.

The law specifies that the assistant commissioner must be a practical dairyman, that an office and laboratory must be maintained and that analyses are to be made of foods and drugs used by the State charitable institutions. Authority is given to inspect, sample, and seize any suspected food products, and the manner of taking samples and procuring the analysis is prescribed. Adulteration and misbranding of food is made a misdemeanor.

The law further prohibits the sale of unclean or unwholesome milk for consumption, defines standard milk and cream measures, and requires a license to be issued after examination to each person wishing to operate a milk or cream testing apparatus. The State board of health is authorized to submit samples of food or drink for examination or analysis and to receive special reports.

The sanitary food law is framed "to prevent the preparation, manufacture, packing, storing or distributing of food intended for sale, or sale of food under insanitary, unhealthful or unclean conditions or surroundings, to create a sanitary inspection, to declare that such conditions shall constitute a nuisance, and to provide for the enforcement thereof." The oleomargarine law regulates the manufacture and sale of substitutes of butter. The stock-food law regulates the sale and prescribes the labeling of concentrated stock foods. The last two laws are entirely commercial.

For the enforcement of the laws the State food inspector has in the field 12 food and 6 stock food inspectors. Five of the food inspectors work in Chicago and seven in the State, each of the latter having a district of eight of more counties. In Chicago no attempt is made to inspect milk, except where it is manufactured into ice cream and similar products, as this field is left to the Chicago health department. The State food commissioner is interested in improving the quality and quantity of food produced in Illinois as well as in preventing the sale of unlawful articles. To this end, educational

work is under way to demonstrate profitable methods of production and handling of food products.

Consideration of proposed changes.—Illinois is said to be the largest manufacturer of food products among the States. The encouragement of this industry both by demonstrating improved methods in the production of food and in prosecuting the unfair competitor who uses adulterated or misbranded articles, while of the highest importance is primarily a commercial regulation and has only an indirect bearing upon the public health. It would seem, therefore, that a combination of the food inspection as at present administered, with purely public health activity, could be of no advantage, as in a health department the prevention of disease should be the primary function, and all other activities should be subordinate to it.

It has already been emphasized that the duties and responsibilities of the State food commission and the State board of health should be defined, especially regarding milk, and it was suggested that all State dairy inspection be done by the board of health. The two departments should nevertheless cooperate by promptly furnishing information to each other, and the State board of health should act as advisor in the question of drugs and especially in drawing regulations for special containers and labels for poisons. Closer cooperation between the State food commissioner and the State factory inspector is also desirable, as the latter inspects factories producing foods and issues licenses to those making ice cream. By working together, better results with less overlapping should be obtained.

Closer cooperation with the Chicago health department, which employs 85 food, dairy, and milk inspectors, is also recommended. The five State food inspectors in Chicago can evidently do but a small proportion of the work, but there is now no mutual plan of operation, nor are reports exchanged to show the locality or extent of the operations of each. It is evident that by apportioning the work by frequent conferences and reports greater efficiency would be secured.

Illinois Department of Factory Inspection.

The last appropriation act made provision for the following personnel:

Chief factory inspector	$3,000
Assistant factory inspector	2,225
Physician factory inspector	1,500
30 deputy inspectors, at	1,200
1 attorney	1,500

In addition there are employed 4 stenographers, 1 chemist, 2 clerks, and a physician, paid out of the general appropriation.

The offices of the department are at No. 608 South Dearborn Street, Chicago, where there is also a small museum of safety devices, with exhibits of occupational diseases.

The present department was created by an act approved June 3, 1907. It is charged with the enforcement of nine laws, viz:

1. An act to regulate the manufacture of clothing, which allows clothing to be made only by members of the family if made in living rooms, requires the condemnation of clothing by the board of health if a contagious disease is present or if it contains vermin or is made under unhealthful conditions. (Approved June 17, 1893.)

2. Act to require blowers on metal-polishing machinery. (Approved June 11, 1897.)

3. Child-labor act, which prohibits employment of children under 14 years of age when schools are in session or in any place of amusement where intoxicating liquors are sold, and requires employers of more than five children between 14 and 16 years to register and post their names. It also requires each child employed in certain places to have a certificate showing he can read and write or to attend night school, and prohibits the employment of those under 16 in certain occupations or anywhere for more than 48 hours a week, or 8 hours a day, or from 7 p. m. to 7 a. m. (Approved May 15, 1903.)

4. The butterine and ice-cream act, which regulates premises where these articles are made and requires a certificate of inspection. (Approved June 3, 1907.)

5. The safety building-construction act, which provides how scaffolds shall be made, prohibits overloading of buildings during construction, and similar regulations. (Approved June 3, 1907.)

6. The health, safety, and comfort act, which provides safety guards for machinery, enforces ventilation, disposition of refuse, wash rooms, toilets, and similar measures, and prohibits food in places where poisons are handled. This law, which applies to factories, mills, workshops, and mercantile establishments, provides that if municipal ordinances are equal to standards prescribed and are enforced a report of local inspectors will be sufficient. (In force Jan. 1, 1910.)

7. Occupational-disease act, which declares that manufacturing processes using certain salts of lead or smelting lead, zincs, or brass are dangerous to the health of employees, and prescribes precautions, which include flues, washing facilities, double lockers, and the prohibition of drinking or eating in such factories. All such employees must be examined once a month by a licensed physician, who must report the result to the State board of health on blanks prepared by it. The State board is required to forward copies of these reports to the chief factory inspector. (Approved May 26, 1911.)

8. An act to regulate and limit the hours of employment of females to 10 hours per day. (Approved June 10, 1911.)

9. The wash-room act, which requires wash rooms and lockers in any employment where workers become covered with grease, smoke, dust, grime, and perspiration. (Approved June 26, 1913.)

The duties of the State factory inspector are not, strictly speaking, of a public-health character, except the provisions regarding the manufacture of clothing and for the prevention of occupational diseases, but the duties of this department touch in certain particulars those of the State board of health, the State food commissioner, and the various city boards of health, especially the Chicago health department. As previously stated, therefore, there should be closer cooperation on the part of all these agencies.

Illinois Rivers and Lakes Commission.

This commission was appointed for the purpose of creating an official body to have jurisdiction and supervision over all waters and lakes of the State in which the State or the people of the State have any rights or interests.

The personnel and salaries are as follows:

Chairman of commission	$5,000
Two members, each	3,500
Secretary	3,600
Assistant engineer	2,000
Junior assistant engineer	1,200
Hydrographic aid	1,600

The present law, approved June 10, 1911, and amended June 30, 1913, provides for the appointment of a commission of three members, one a lawyer, one a recognized civil engineer, and one neither a lawyer nor an engineer. The term of service is three years. It defines the duties of the commission, which are in general to make surveys, and to investigate complaints regarding navigation, docks, wharves, and water pollution. It is in this last particular that the work takes on a sanitary nature. It is estimated by the secretary that 25 per cent of the work during the past year had to do with stream and lake pollution.

The section of the law referring to stream pollution states that "it shall be the duty of said rivers and lakes commission to see that all streams and lakes of the State * * * are not polluted or defiled by the deposit or addition of any injurious substances and that the same are not affected injuriously by the discharging therein of any foul or injurious substances, so that fish or other aquatic life is destroyed." If this is found, after investigation, an order commanding abatement of the nuisance may be entered.

For the purposes of this report only the stream-pollution work need be considered.

Both the Illinois water survey and this commission study methods of sewage disposal, together with its effect on streams, and give advice regarding new water and sewage installations. This commission has no laboratory and no sanitary engineer and must refer questions involving analyses and technical advice to the State water survey. The rivers and lakes commission investigates complaints, and while it can do something by persuasion, apparently has no authority to take proceedings unless the pollution is of a nature to injure fish or other aquatic life. It also passes on plans submitted to it by municipalities about to install new sewers and sewage-disposal plants; work also done by State water survey, but neither body has power to change such plans. The rivers and lakes commission, however,

has the power to take action if, after the plant is in operation, the resulting pollution is such as to bring it under that part of the law quoted.

Illinois State Water Survey.

In 1897 the general assembly created the Illinois State Water Survey by authorizing and directing the trustees of the University of Illinois to establish a chemical and biological survey of the waters of the State, in connection with the State University at Urbana. The present personnel and their compensations are as follows:

Director	$4,000
Engineer	3,500
Inspector	1,500
Chemist and bacteriologist	1,500
1 assistant engineer	1,500
1 assistant engineer	1,200
1 assistant chemist	900
4 assistant chemists	840
1 engineering assistant	1,080
2 engineering assistants	900
1 clerk	780
4 stenographers, at $720, $650, $540, $500.	

This survey was established to collect facts and data in connection with water supplies, to take and analyze samples and to establish and publish standards of purity for drinking water. The investigations and analyses are for manufacturing concerns, for local boards of health, local water departments, or for citizens, and for that purpose the law of 1911 gives authority to employ field men to visit municipal water supplies, to inspect watersheds, to make field studies, and to collect samples.

It also gives authority to make any investigations, to the end that a pure and adequate public water supply for domestic and manufacturing purposes may be maintained in each municipality, and to report the results of its investigations to the board of health, the water department of the municipality, or to citizens by whom samples were collected.

Functions and relations to other departments.—The Illinois State Water Survey has important educational, scientific, and advisory functions. It has no police powers and does not attempt to enforce, through other State departments, compliance with its advice. It has a large and well-equipped laboratory, and a staff of scientific workers who do research work and educate students in practical sanitary engineering both in the field and the laboratory. On the other hand, both the State board of health and the rivers and lakes commission have police powers, but are without the personnel or equipment to make detailed sanitary surveys.

It is evident that the duties mentioned should be more definitely apportioned to avoid duplication and that ample authority should be given the State board of health to prescribe and enforce rules and regulations for the control of water-borne diseases. While at first it would seem logical to give the rivers and lakes commission jurisdiction over stream pollution of commercial origin and to give the control of the pollution of streams by human excreta and household wastes to the State health authorities, from a practical standpoint such division of authority and labor is inadvisable. Control of commercial pollution is required simply on the ground that it may cause a public nuisance, and control of domestic pollution is required to prevent disease. The entire problem should therefore be under the jurisdiction of a State health department authorized to call upon the State water survey for assistance.

As has been recommended, the State health department should have a sanitary engineer with assistants and sufficient laboratory facilities to make surveys in order to determine the causes of existing water-borne diseases and to take prompt steps to stop their spread. It should further have the power to compel municipalities to install safe water supplies and to adequately dispose of sewage. Headquarters for this work should be in Springfield.

The research, educational, and consultant work may be left to the State water survey, which should continue to serve the State board of health by acting as consultant and by making such studies and investigations for it as may be necessary to solve the problem submitted. By this arrangement the water survey's activities regarding the sanitation of water supplies would be limited to those problems submitted to it by the State board of health.

Illinois State Charities Commission.

This is an unpaid body with advisory powers only and consists of five members appointed by the governor, and reporting to him annually. The office of the commission is in the State Capitol at Springfield, and the active work is done by a full-time secretary and one inspector.

The duties of the commission are "to investigate the whole system of public charitable institutes of the State, to examine into the conditions and management thereof, especially of State hospitals, jails, and almshouses; to establish a bureau of criminal statistics, to collect and publish annually the statistics of Illinois relating to crime."

The secretary of the charities commission personally inspects the 18 State charitable institutions, thus cooperating with the State board of administration, which operates and controls them. The inspector (female) visits county and city jails, almshouses, and workhouses, endeavoring to improve sanitary, social, and moral condi-

tions, and reports to the secretary. The secretary reports to the commission, but not to the State board of health, and it has been suggested that a copy of all reports on local institutions be furnished the State board of health, as well as any information obtained regarding communicable diseases occurring in or near a State institution.

It is not known what authority, under its general powers, the State board of health would have to correct insanitary conditions in county or city institutions, but it should have all the information possible, and if it is decided that this power is lacking under the present laws, it should undoubtedly be given by legislation.

Unofficial Sanitary Agencies.

The Illinois State Association for the Prevention of Tuberculosis is made up of 39 local organizations (city or county), 15 of which were organized in 1914 by an extension secretary, employed by the State association for the first time that year.

The chief aim of the State association is to secure a community nurse or nurses in each county in the State. These nurses are to engage not only in tuberculosis work, but to cooperate with local health authorities in every possible way. Twenty-three localities have community nurses employed at this time and five cities have tuberculosis dispensaries.

Part of the program of the State association has been the creation of local sanatoria. Under the provisions of the Glackin law the proposition has carried Rock Island, Peoria, Rockford, Belleville, and Chicago.

There will be introduced in the present general assembly a bill similar to the Glackin law, permitting counties to assess a special tax of 1 mill for the creation of county sanatoria, and also providing for the creation of sanatorium districts, to be made up of several adjacent counties. Inasmuch as the Glackin law has been ineffective, largely on account of the city being regarded as too small a community in most instances for sanatorium purposes, it is hoped that the proposed county law will bring about more definite results.

Practically all of the work done up to this time in Illinois, except in Chicago, has been financed through the sale of Red Cross Christmas seals and memberships in local organizations.

The State of Illinois has made no expenditures in the warfare against tuberculosis except through the publication of several editions of a circular by the State board of health and special provision for the care of the tuberculous inmates of the State hospitals for the insane.

With the adoption of the Glackin law in Chicago and the creation of the Chicago Municipal Sanitarium the 10 dispensaries formerly operated by the Chicago Tuberculosis Institute, together with their

physicians and nurses, were taken over by the municipality and are now supported out of the 1-mill tax provided for in the Glackin law.

No sanatoria are operated by counties except in the case of the tuberculosis department of the Oak Forest Infirmary in Cook County. This has a capacity of 400 beds.

There is no State tuberculosis sanatorium in Illinois. The Illinois State Association for the Prevention of Tuberculosis has attempted to do some educational work throughout the State, and this educational campaign is being developed to a moderate extent at the present time. An educational bulletin is published and speakers are supplied at public meetings.

In conjunction with the State Federation of Women's Clubs, there was completed in 1914 a State-wide tuberculosis survey, carried out by the women's organization, in which there was an effort to locate all living cases and secure data of all deaths from the disease. This has created an active interest on the part of the women's clubs of the State, which have now become one of the most active forces in antituberculosis work.

The Illinois State Conference of Charities and Correction, in conjunction with the community advisors of the University of Illinois, has undertaken a survey or inventory of the public health and social and civic agencies of all cities in the State of over 3,000 population. The chief object of this inventory is to ascertain the resources of the individual localities, the organizations already organized to deal with public health, social and civic problems, and, in case no organizations are in existence, to ascertain those private citizens particularly interested in any of the phases of such work.

A newly created section of the Illinois State Medical Society, known as the section on public health and hygiene, is for the first time emphasizing public-health problems in that organization.

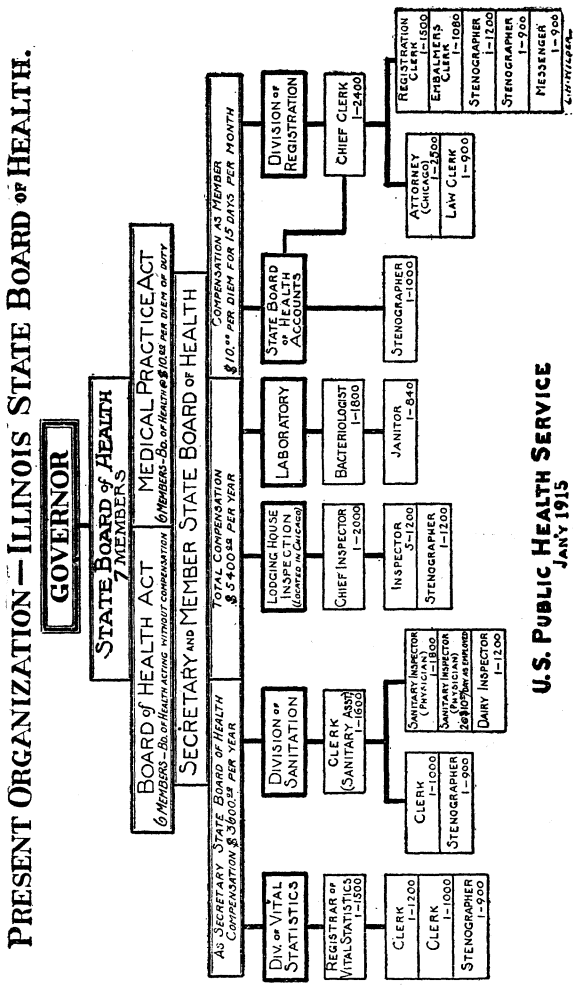
The Illinois Association of Graduate Nurses is devoting attention to community nursing.

The Elizabeth McCormick Memorial has extended its influence through paid educators throughout the State in supporting legislation for the creation of an epileptic colony. This measure was passed at the last general assembly. The McCormick Memorial also supplied the funds which made possible the introduction of open-air schools in the city of Chicago and are distributing educational material, furnishing moving pictures, etc., in support of the open-air-school movement throughout the State.

Outside of Chicago there is in Illinois but one open-air school, recently established at Jacksonville through the efforts of the local tuberculosis association and the board of education. A number of large communities in the State, through their boards of education, are employing school nurses.

Conclusion.

After a careful study of the public health administration of Illinois, which has extended over a period of three months, the conclusion is reached that the present State board of health is primarily a licensing board, that its public health functions are not sufficiently developed, and that some of the responsibilities that should devolve on it have



either been assumed by other State departments or left without attention. A reorganization is practicable, and the example of States that have placed their essential public health work in one department under a responsible administrative head should be followed.

Existing authority in public health matters is for the most part not sufficiently specific in Illinois, and new legislation is needed to

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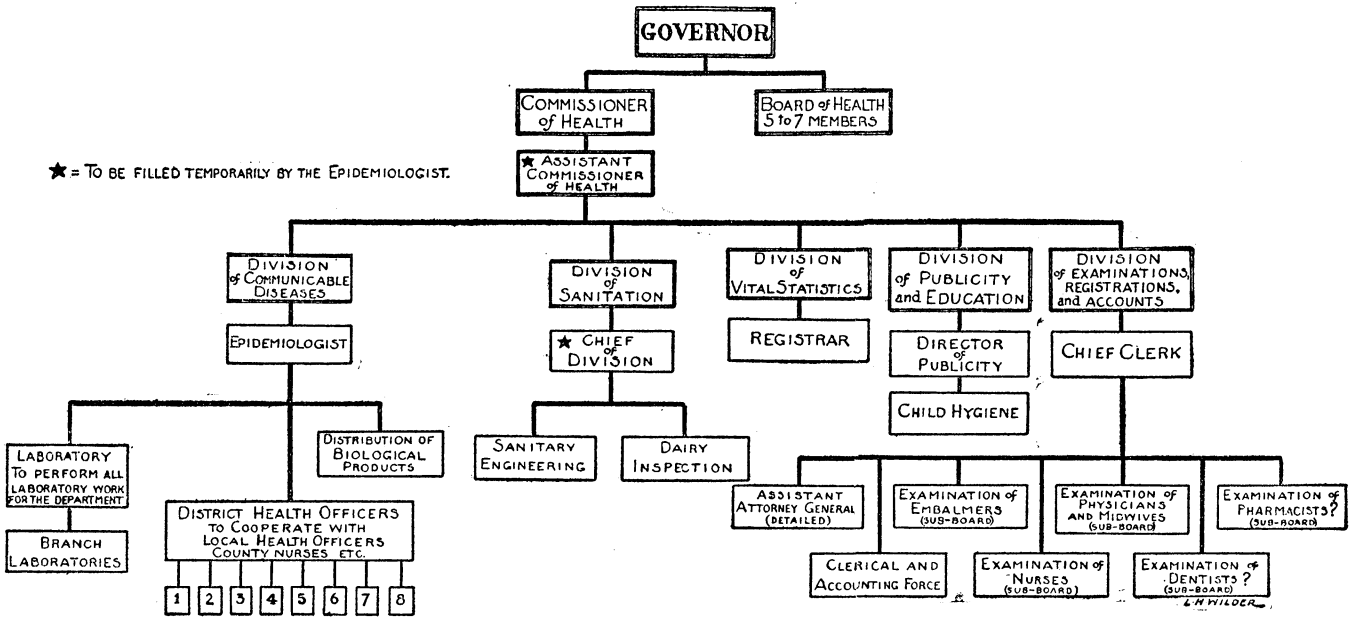

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strengthen the authority of the State in sanitary work already recognized and to allow it to discharge duties not heretofore undertaken. Education in hygiene upon which better personal habits and higher standards of living must depend, needs development and should begin with the young child.

The time has come when in the interest of the public health and better race development more attention must be devoted to the health and mental growth of children, including those mentally deficient. While the work of child hygiene has largely to do with schools, its supervision should begin at or before birth, and must continue beyond the average school age.

The present investigation has recognized that many incidental improvements may be made without new legislation. Some of these that were recommended in detail, have in certain cases already been adopted.

Recommendations.

1. The health functions of Illinois should be grouped into one department under the title of State department of health. The head of this department should be the State commissioner of health. He should be appointed by the governor, entirely on account of his experience and ability, and without limitations as to residence, school of medicine, or politics. He should receive an adequate salary, and should not engage in any other business for profit. His continuance in office should depend entirely on efficiency.

2. A board of health should be appointed by the governor from among those residents of the State most experienced and interested in public health work. The number may be limited to five, and should not be more than seven. The commissioner of health of Chicago should be a member of this board, and a majority of the members should be physicians.

3. The board of health should meet regularly at Springfield and on call of the commissioner or a majority of the board. It should make and promulgate rules and regulations, take evidence in appeals, consider plans and hold hearings, define the qualifications and duties of local health officers, and submit annually to the general assembly through the governor, a report on needed legislation. Rules and regulations established by the board under public health laws, should have the force and effect of law

4. The board of health should advise with the State commissioner of health in matters of policy and procedure and should confirm action taken along those lines, but full executive authority and responsibility should rest with the commissioner. The members should be paid a per diem and expenses for meetings and for services performed at the request of the commissioner.

5. The State department of health should be reorganized by establishing the following divisions:

Division of communicable diseases.
Division of sanitation.
Division of vital statistics.
Division of publicity and education.
Division of examinations, registration, and accounts.

6. A competent epidemiologist should be appointed to have charge of the division of communicable diseases, to act as assistant commissioner of health in the absence of that official, and to be temporarily in charge of the division of sanitation.

7. The State, outside of Chicago, should be divided into at least eight districts, and for each there should be appointed a full-time State health officer.

8. The work of the State laboratory should be extended; two branch laboratories should be established at once, and all should be used as sources of information regarding the existence of communicable diseases.

9. The district health officers, the laboratories, and the distribution of biological products should be under the division of communicable diseases.

10. A sanitary engineer should be appointed and be allowed necessary assistants.

11. Dairy inspection should be extended in cooperation with local governmental agencies.

12. The sanitary engineering and dairy inspection work should be carried on through the division of sanitation.

13. Systematic work in child hygiene, which would coordinate and assist the local agencies throughout the State that are working for the physical and mental advancement of children, should be begun and enlarged.

14. A division of publicity and education, with a competent director, should be created, and under this division should be included child-hygiene work, at least until it is advisable to make of it a new division. The present divisions of vital statistics and of examinations, registration, and accounts should be continued, but the latter should be conducted by a division chief and not unduly occupy the time of the commissioner or the board of health.

15. In addition to the foregoing, legislation should be enacted as follows:

To require the registration of births and deaths.

To require the notification of certain diseases.

To detect occupational diseases.

To require vaccination, at least as a prerequisite to attending school, and to provide free vaccination for all.

To control stream pollution, to require communities to institute approved methods of sewage disposal, and to install approved water-supply systems.

To provide for the supervision of such sewage disposal and water supplies as are already in operation.

To control communicable diseases by means of district State health officers and by closer cooperation with local health authorities, over whom a better control should be given.

To provide for extended dairy inspection based on rules formulated by the State board of health.

To provide for work in child and mental hygiene.

To provide for publicity and education in public health matters.

16. Lodging-house inspection, now made in Chicago by the State board of health, should be discontinued, this being a municipal function.

17. The following appropriations are recommended:

Salaries and office expenses	$38,400
District health officers	19,600
Control of disease	30,000
Serums and vaccines	22,000
Dairy inspection	20,000
Publicity and education	10,000
Laboratory	10,000
Child hygiene	5,000
Medical registration	30,000
Legal department	5,000

The foregoing recommendations require new legislation, but certain changes in administrative detail have been recommended, the most important of which are added to this summary.

18. More office space should be provided and modern office equipment supplied, especially uniform files, and time-saving office machinery.

19. A system of tabulation by perforated cards should be installed, especially for the statistical work in vital statistics, communicable diseases, and the laboratory.

20. A central file system under two general heads of health department and medical registration should be begun for all correspondence, except routine reports, for which special files are necessary.

21. A filing system for pamphlets, and catalogues should be begun.

22. The chief of each division should answer routine communications, signing his own name over his title; the secretary should sign all other letters and no other person should sign the secretary's name.

23. The chief clerk, in addition to handling the accounts, should be made, in fact, as he is practically, chief of the division of registration.

24. Instructions should be issued on the prevention of tuberculosis, chicken-pox, measles, and whooping cough.

25. Physicians using State antitoxin should be encouraged to have laboratory confirmation of their diphtheria diagnoses and to base the release of quarantine on laboratory examinations rather than on any arbitrary time.

26. Daily reports from the laboratory and data from the vital statistics division should be used as a help in locating cases of communicable diseases.

27. Closer relations with local authorities should be cultivated, especially to discover cases of communicable diseases and to limit their spread.

28. Antitoxin agents should be formally appointed each as "Agent of the State board of health," given a certificate and signs to that effect, and be utilized to obtain information, and to aid in educational work, especially in the distribution of literature on communicable diseases.

29. State health inspectors should be required to utilize every opportunity to become informed regarding health administration in localities visited by them and reports should be made on regular blanks.

30. All blanks for birth and death certificates should be furnished by the State board of health, and should conform to the standards recommended by the Bureau of the Census.

31. Lists of names accompanying death certificates sent by local commissioners of health to the State board of health should be discontinued and county clerks should be required to report at least name, sex, color, place, and date of birth of each birth reported.

32. Copies of all death certificates except those from Chicago should be made pending legislation to allow retention of originals; a card index of birth and death certificates should be begun, and a fireproof room should be provided for these files.

33. The present laboratory should be rearranged to allow more varied work, methods of collecting samples should be simplified, and the use of the laboratory by physicians encouraged.

34. The State board of health should cooperate with other departments of the State government, especially the State charities commission, the department of factory inspection and the State food commissioner.

35. Copies of public-health laws and important regulations should be furnished those taking examinations to practice medicine and each should be required to certify that he is familiar with such laws and regulations before license is given.